FIG. 1

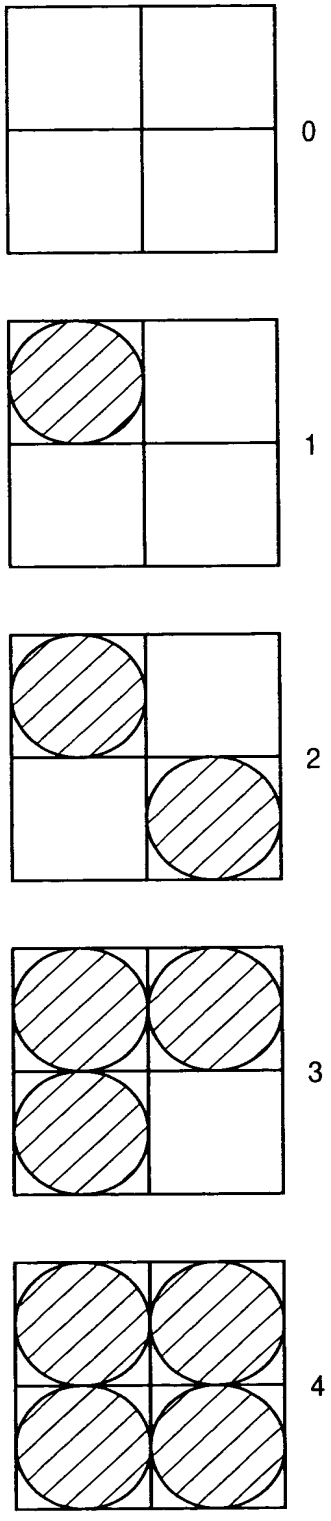


FIG. 2

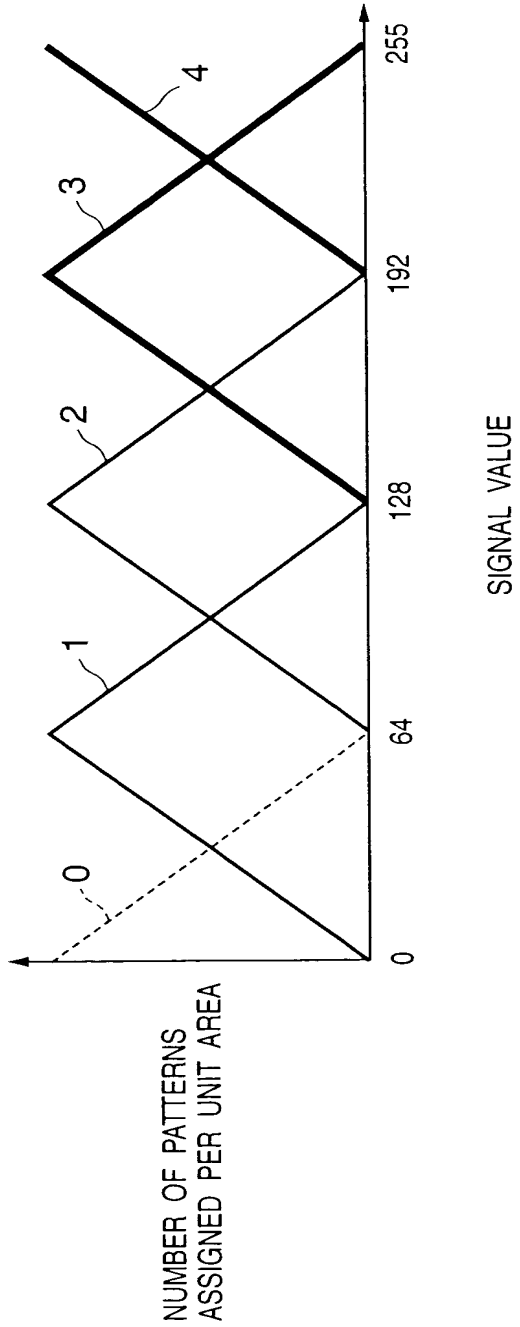

0
1
2
3
4
0
64
128
192
255
SIGNAL VALUE
NUMBER OF PATTERNS
ASSIGNED PER UNIT AREA

FIG. 3

INDEX NUMBER	SIGNAL VALUE (CENTRAL VALUE) 8bit	SIGNAL VALUE (CENTRAL VALUE) 12bit	NUMBER OF DOTS/ (600-DPI GRID)
0	0	0	0
1	64	1024	1
2	128	2048	2
3	192	3072	3
4	255	4080	4

FIG. 4

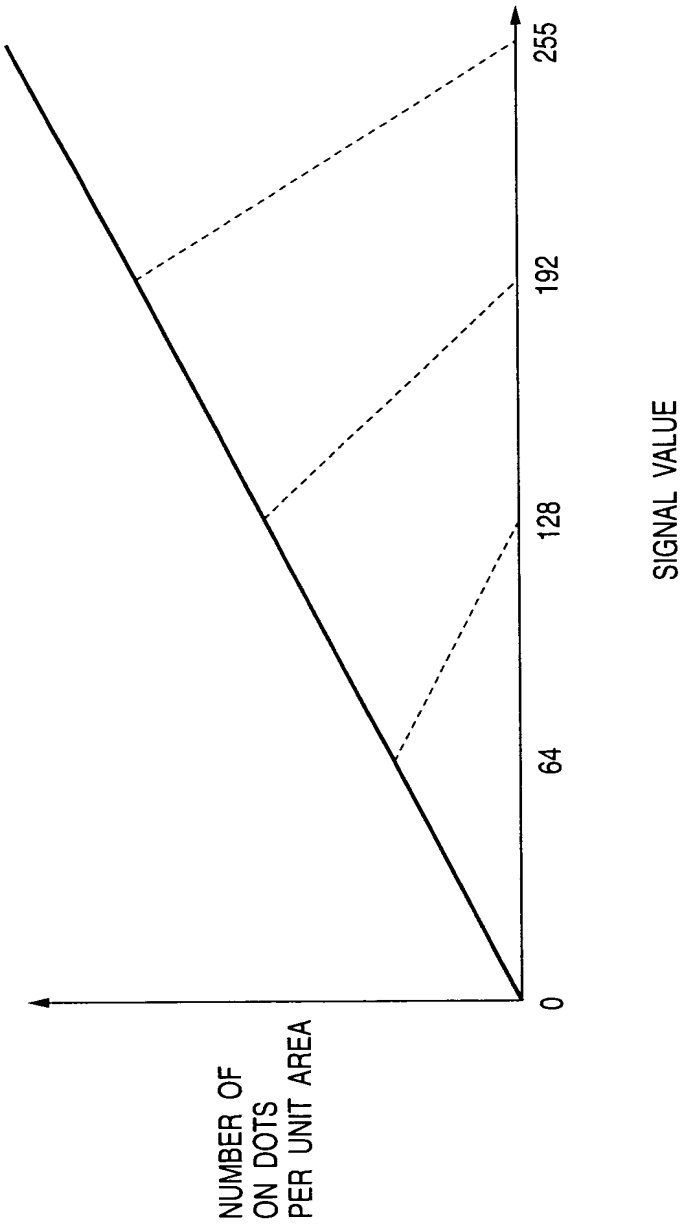


FIG. 5

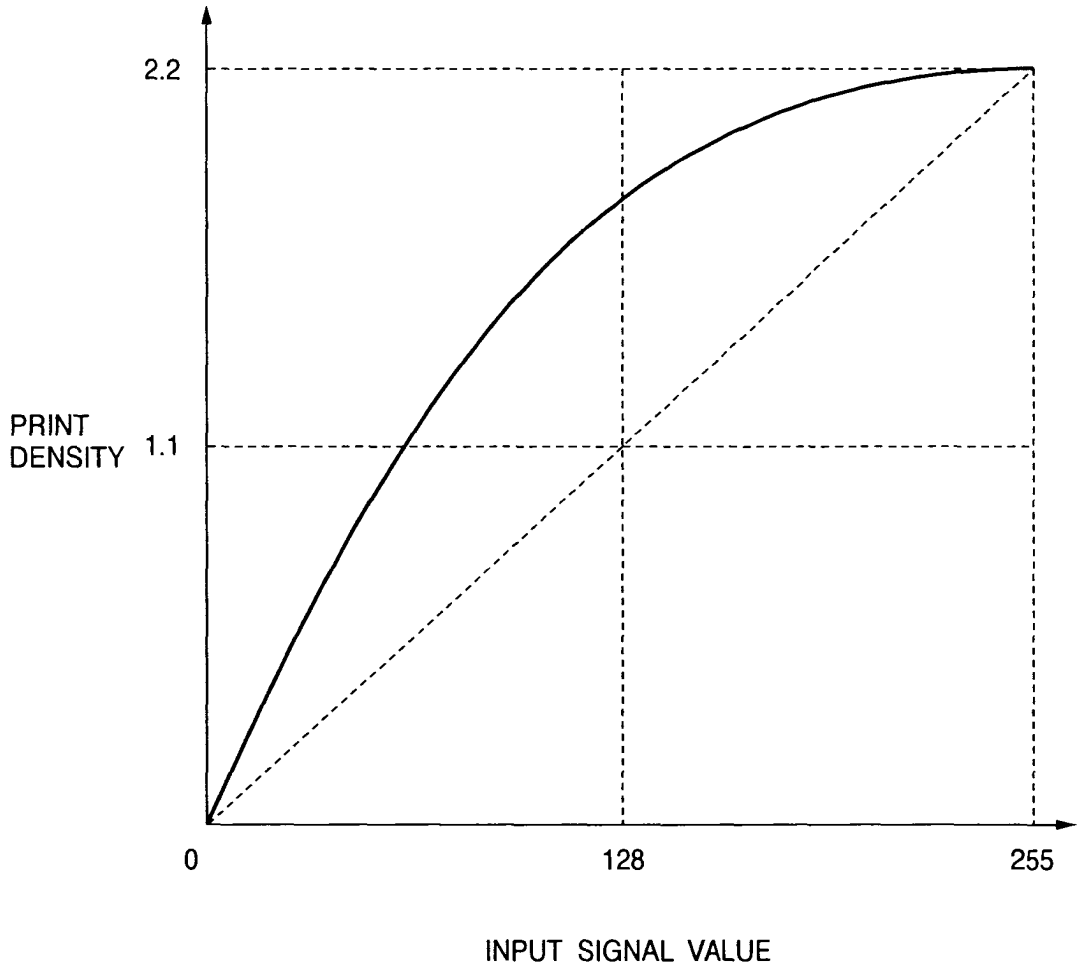


FIG. 6

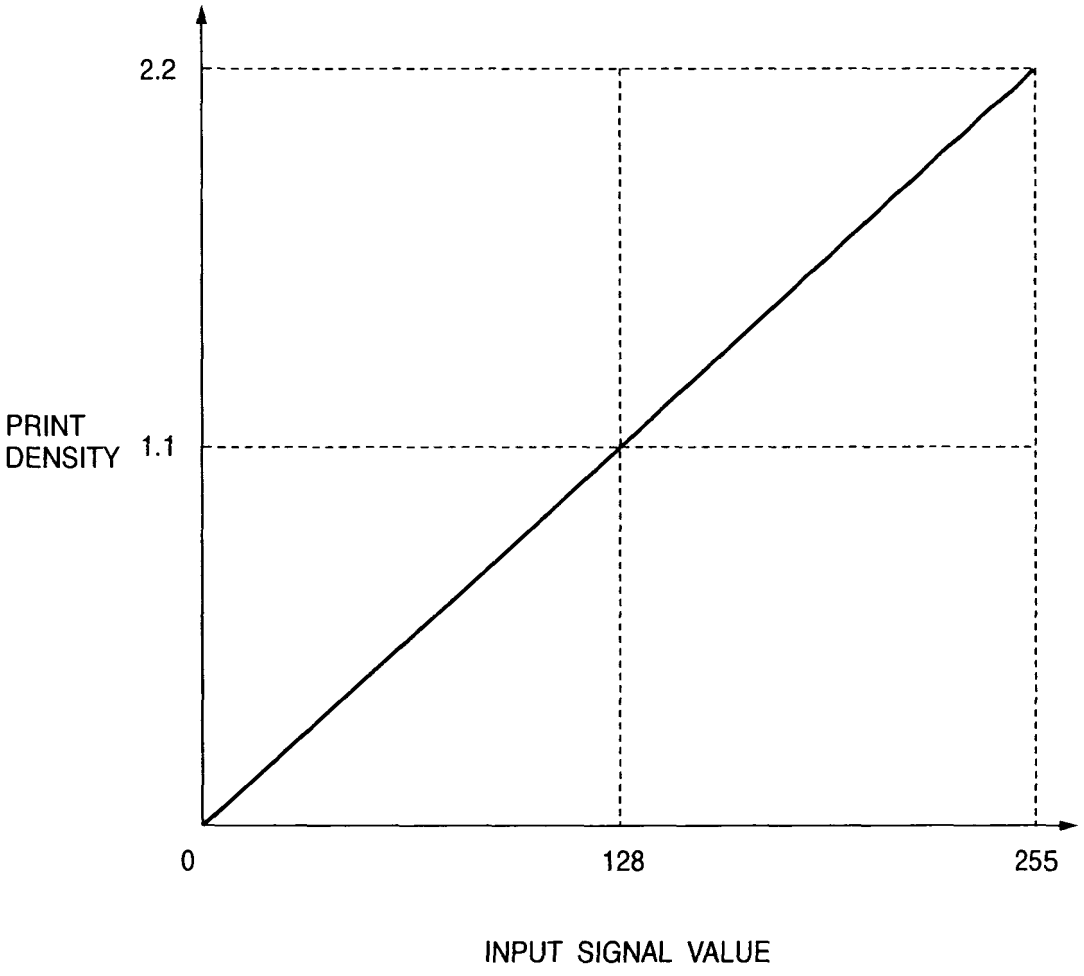


FIG. 7

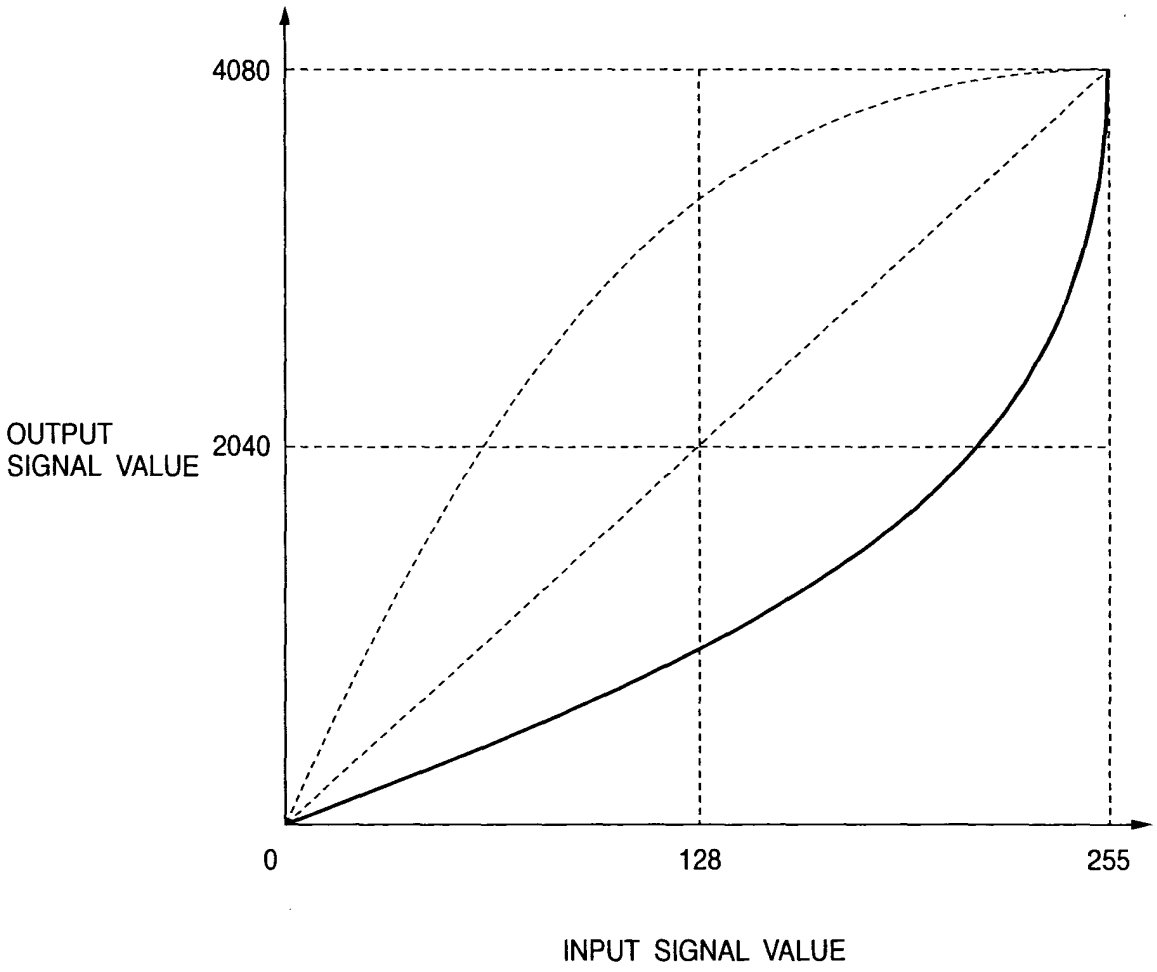


FIG. 8

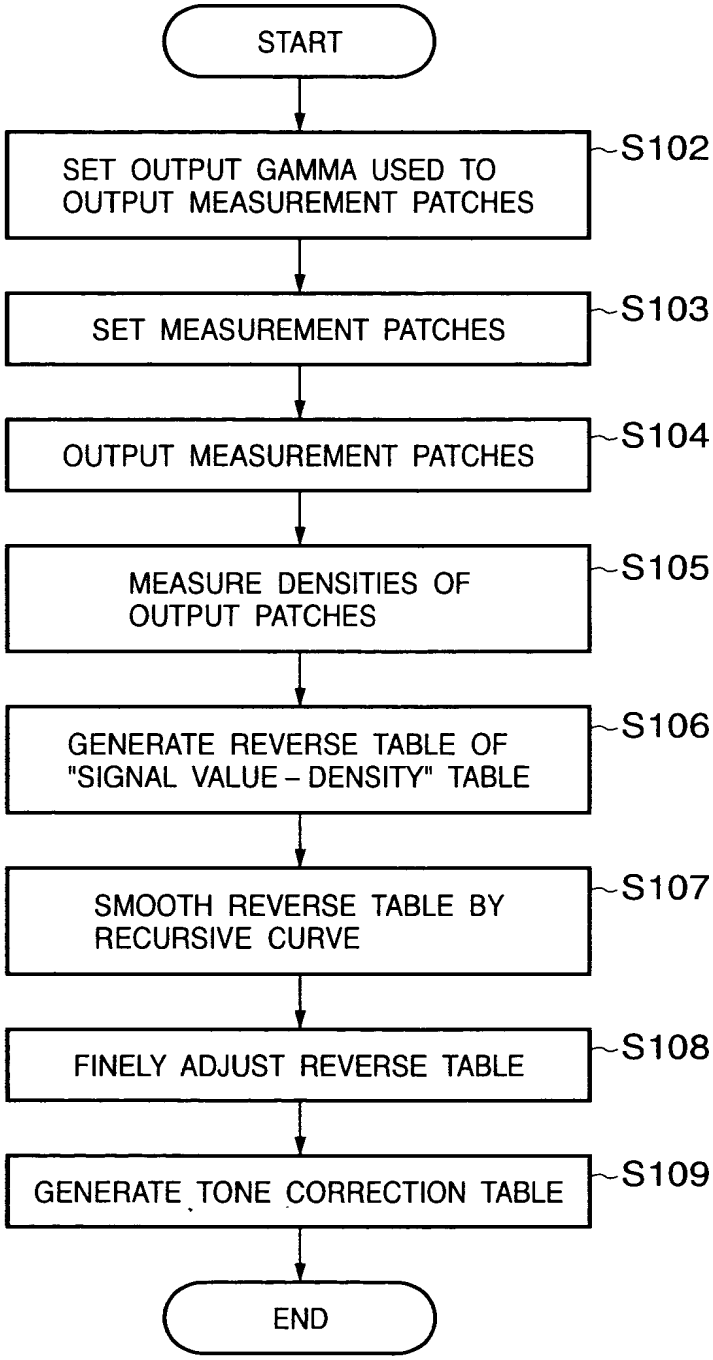

START
SET OUTPUT GAMMA USED TO OUTPUT MEASUREMENT PATCHES
S102
SET MEASUREMENT PATCHES
S103
OUTPUT MEASUREMENT PATCHES
S104
MEASURE DENSITIES OF OUTPUT PATCHES
S105
GENERATE REVERSE TABLE OF "SIGNAL VALUE - DENSITY" TABLE
S106
SMOOTH REVERSE TABLE BY RECURSIVE CURVE
S107
FINELY ADJUST REVERSE TABLE
S108
GENERATE TONE CORRECTION TABLE
S109
END

FIG. 9

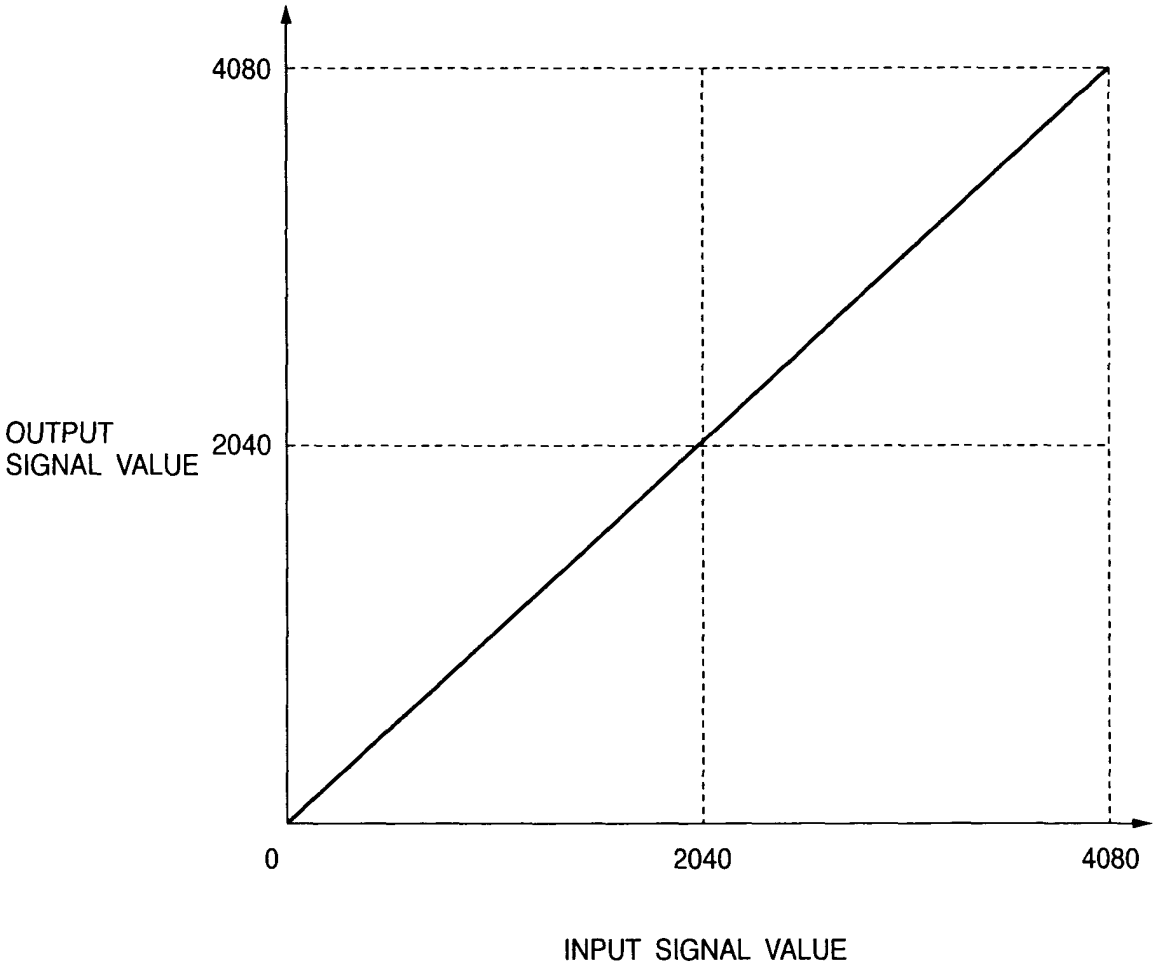

4080
2040
OUTPUT
SIGNAL VALUE
0
2040
4080
INPUT SIGNAL VALUE

FIG. 10

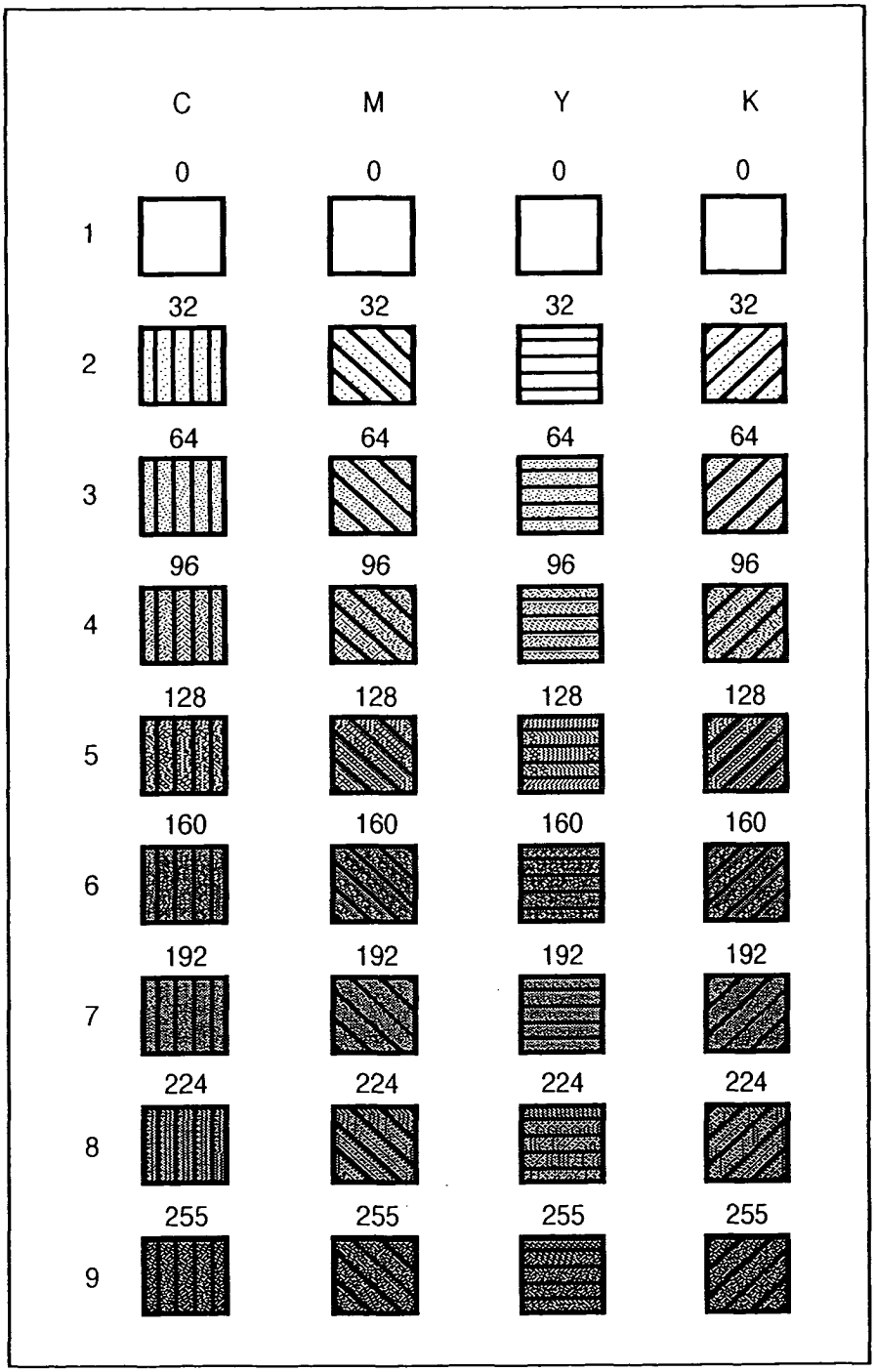

C
M
Y
K
0
0
0
0
1
32
32
32
32
2
64
64
64
64
3
96
96
96
96
4
128
128
128
128
5
160
160
160
160
6
192
192
192
192
7
224
224
224
224
8
255
255
255
255
9

FIG. 11

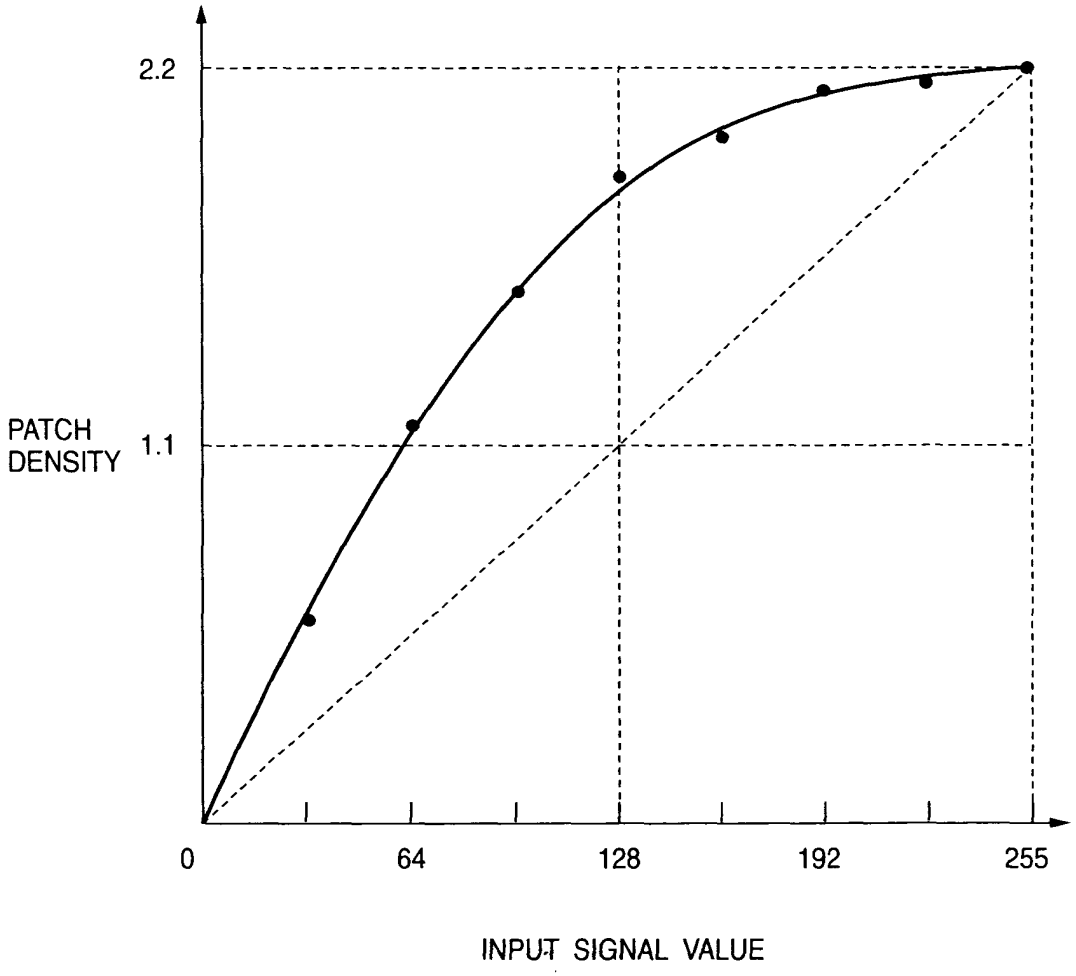


FIG. 12

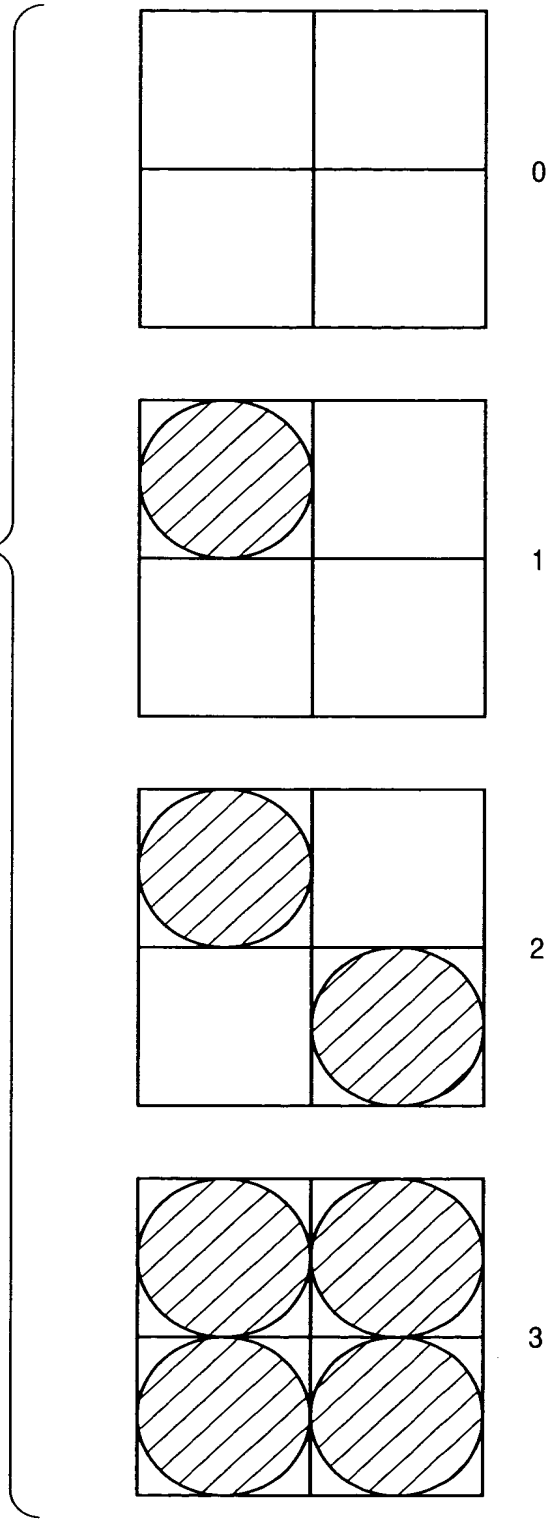


FIG. 13

INDEX NUMBER	SIGNAL VALUE (CENTRAL VALUE) 8bit	SIGNAL VALUE (CENTRAL VALUE) 12bit	NUMBER OF DOTS/ (600-DPI GRID)
0	0	0	0
1	85	1360	1
2	170	2720	2
3	255	4080	4

FIG. 14

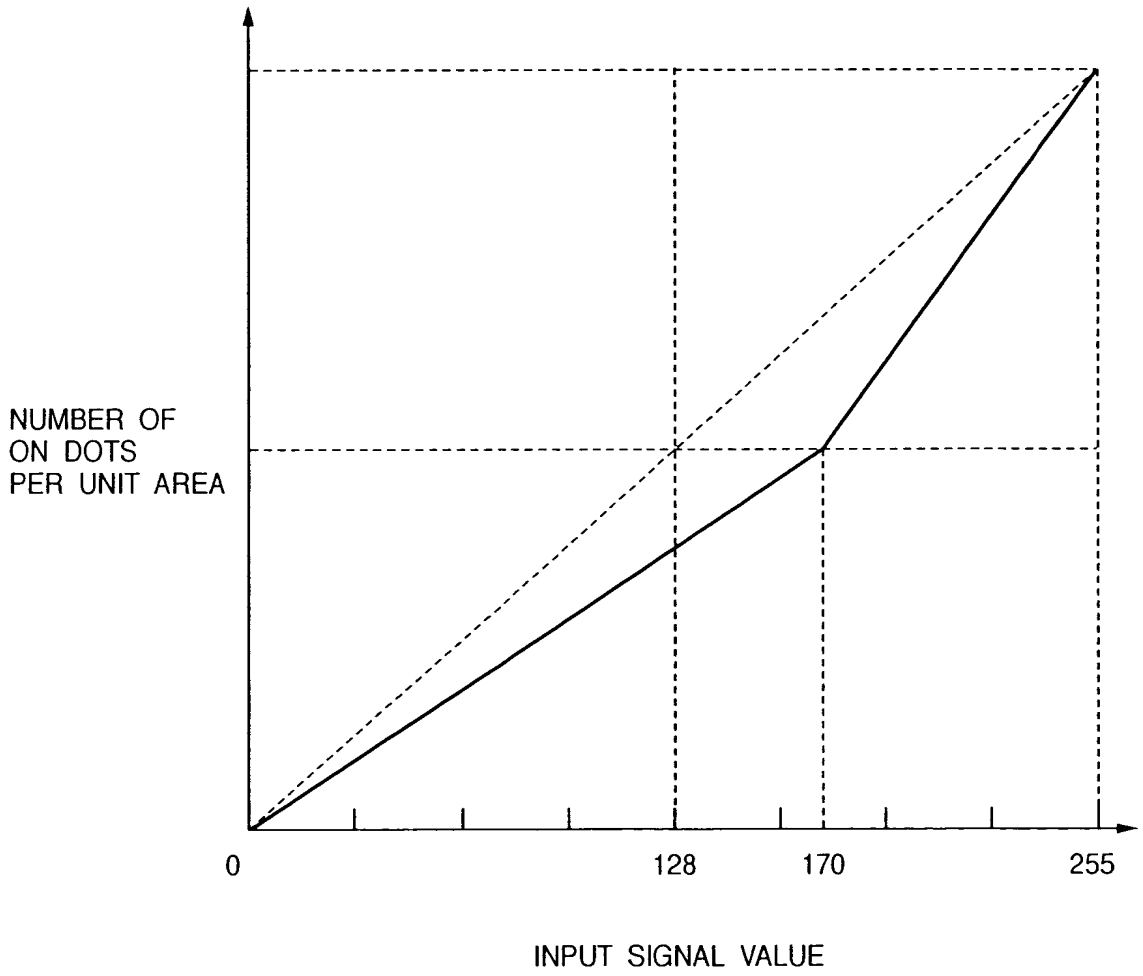

NUMBER OF
ON DOTS
PER UNIT AREA
0
128
170
255
INPUT SIGNAL VALUE

FIG. 15

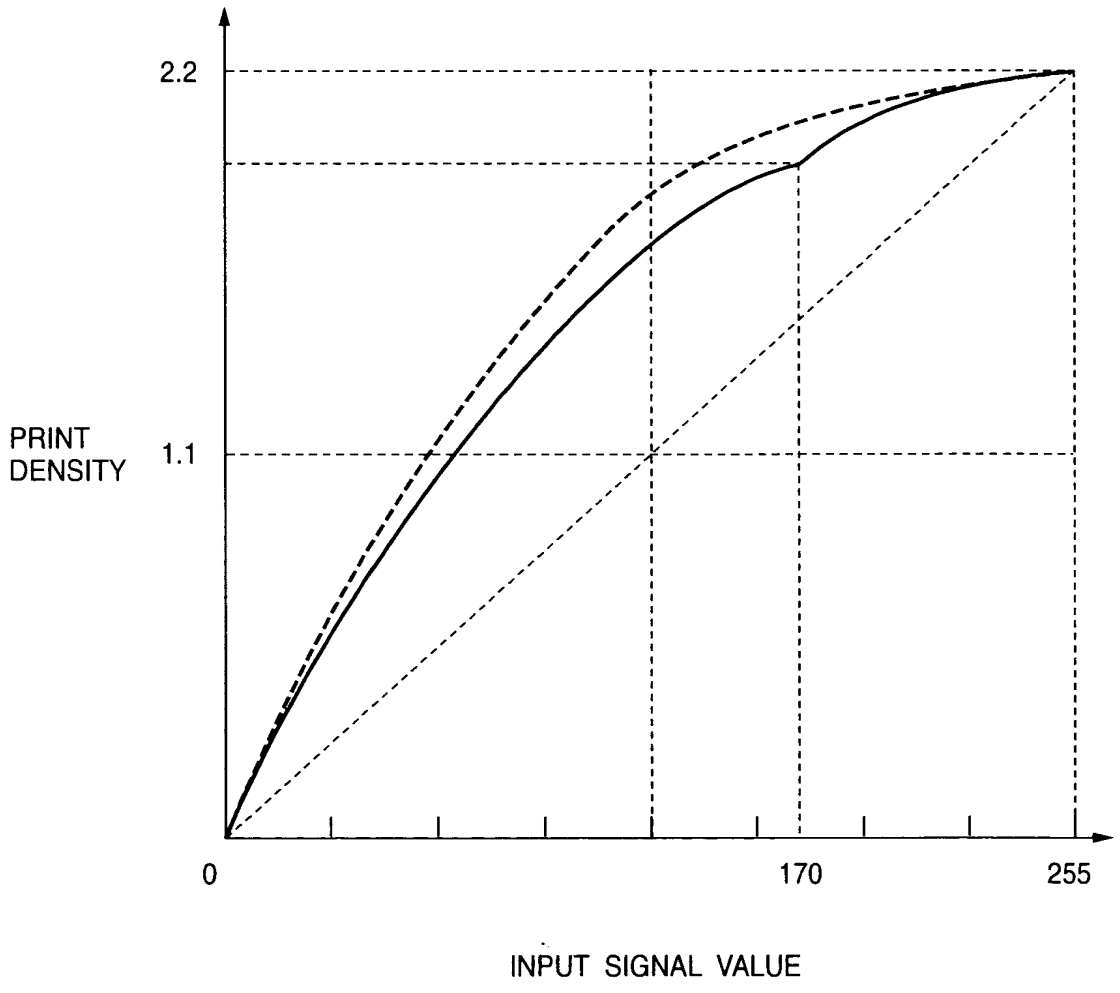


FIG. 16

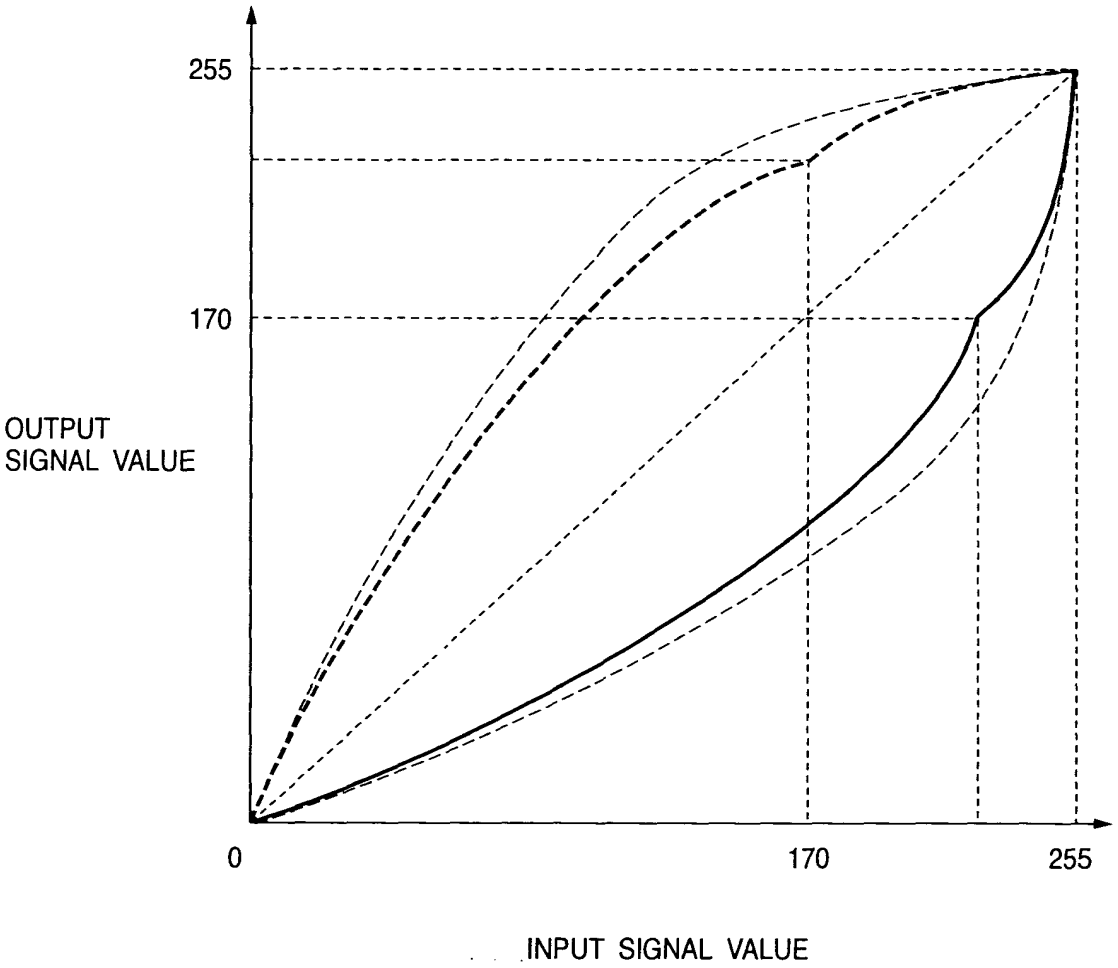


FIG. 17

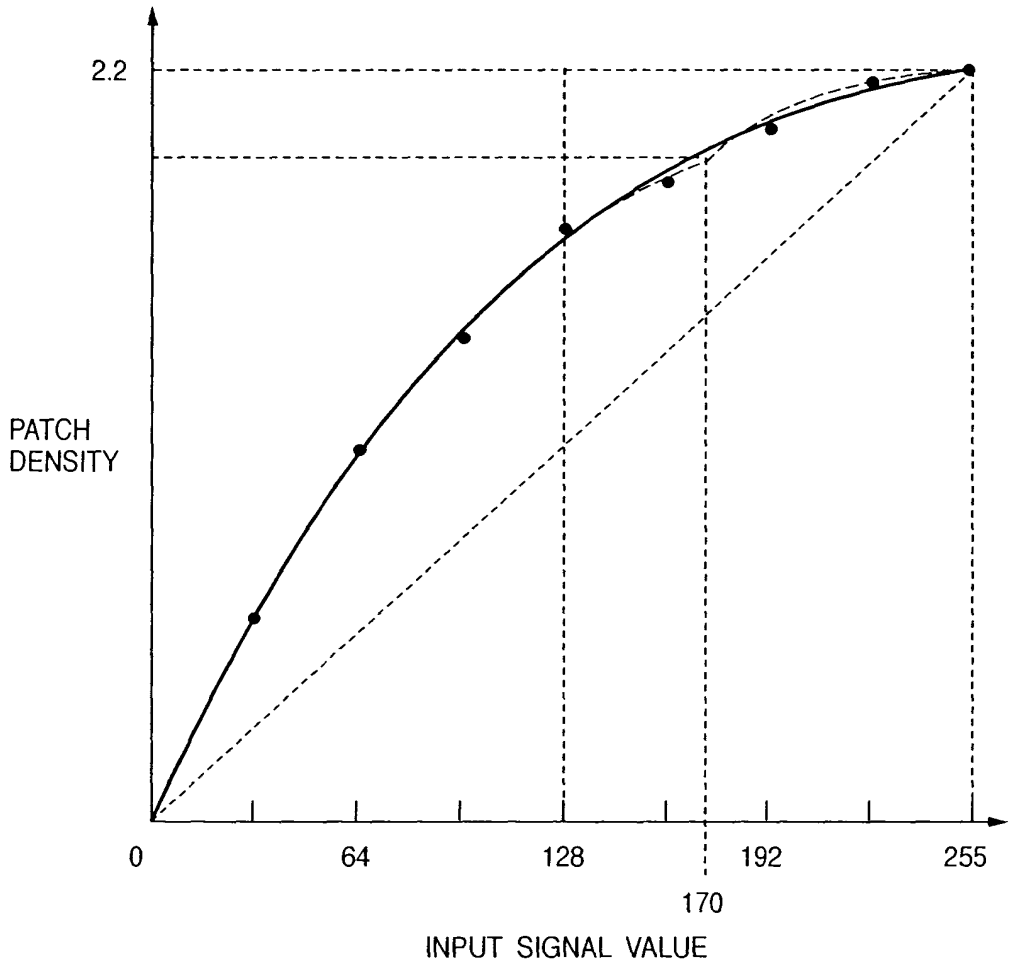


FIG. 18

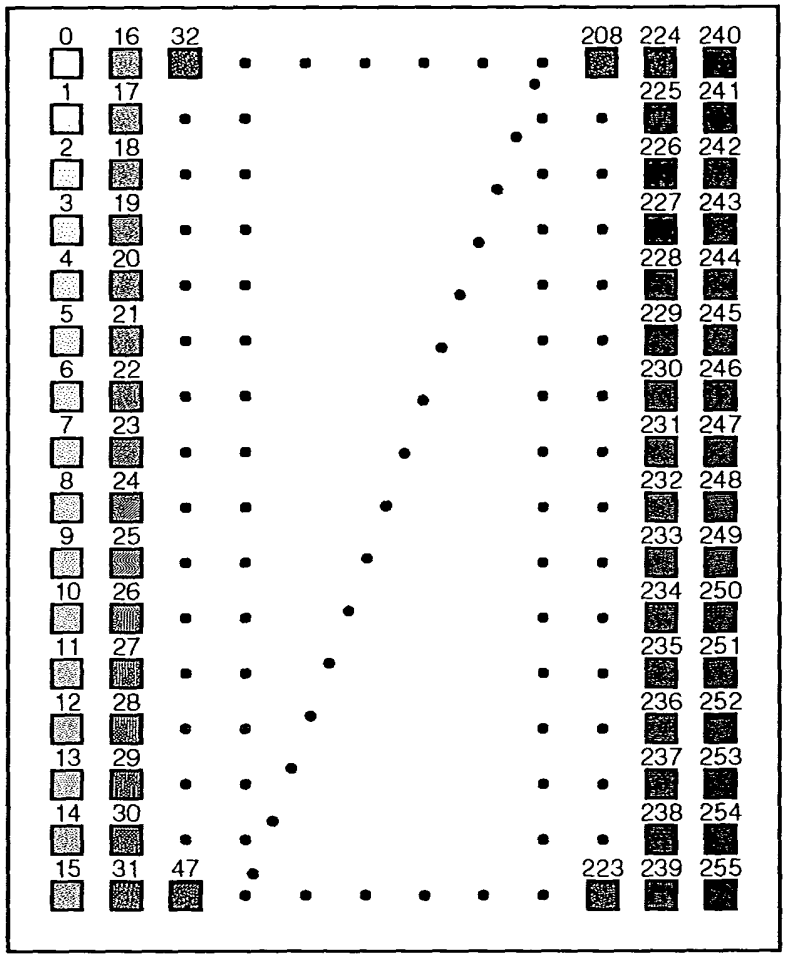

0 16 32 208 224 240
1 17 225 241
2 18 226 242
3 19 227 243
4 20 228 244
5 21 229 245
6 22 230 246
7 23 231 247
8 24 232 248
9 25 233 249
10 26 234 250
11 27 235 251
12 28 236 252
13 29 237 253
14 30 238 254
15 31 47 223 239 255

FIG. 19

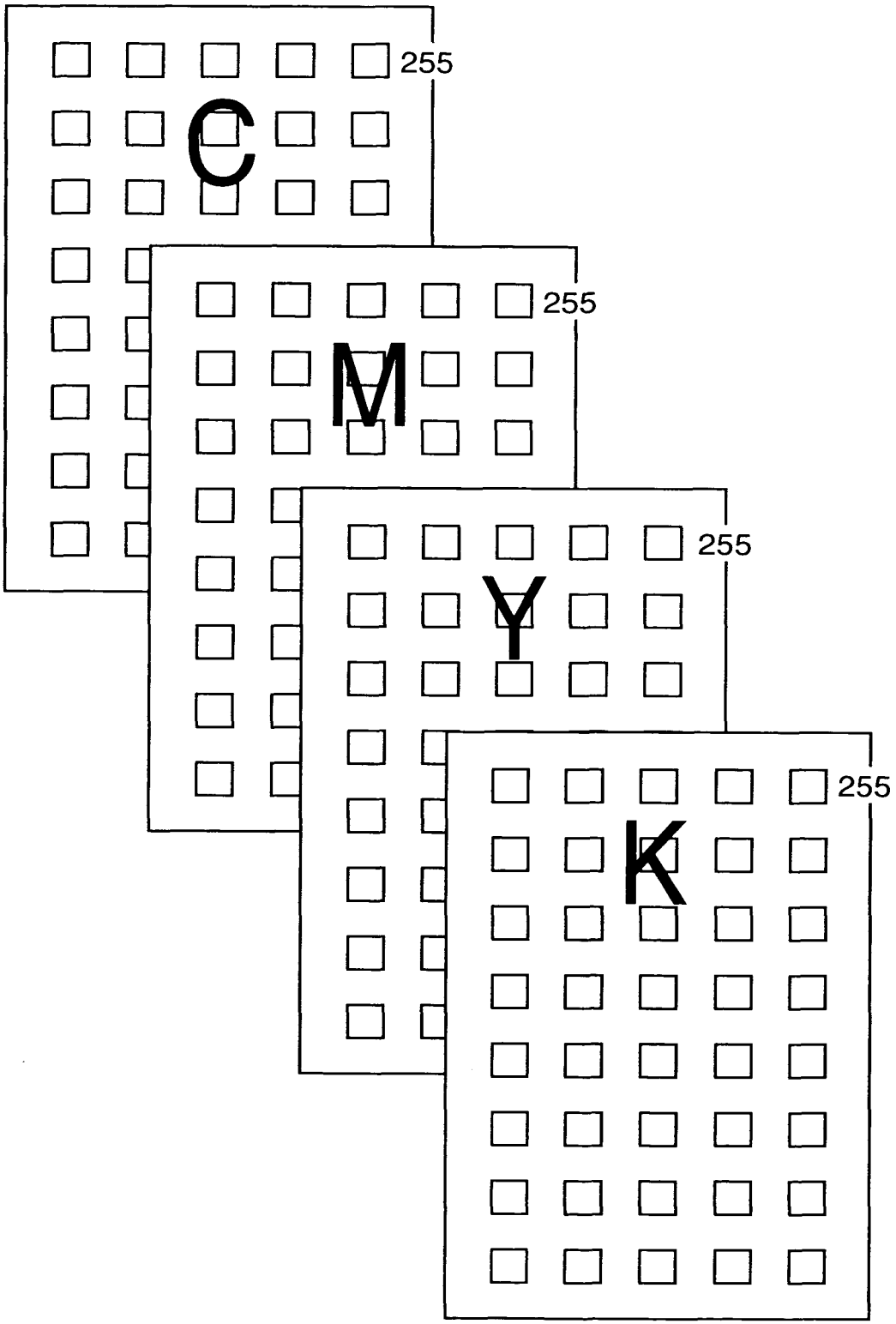


FIG. 20

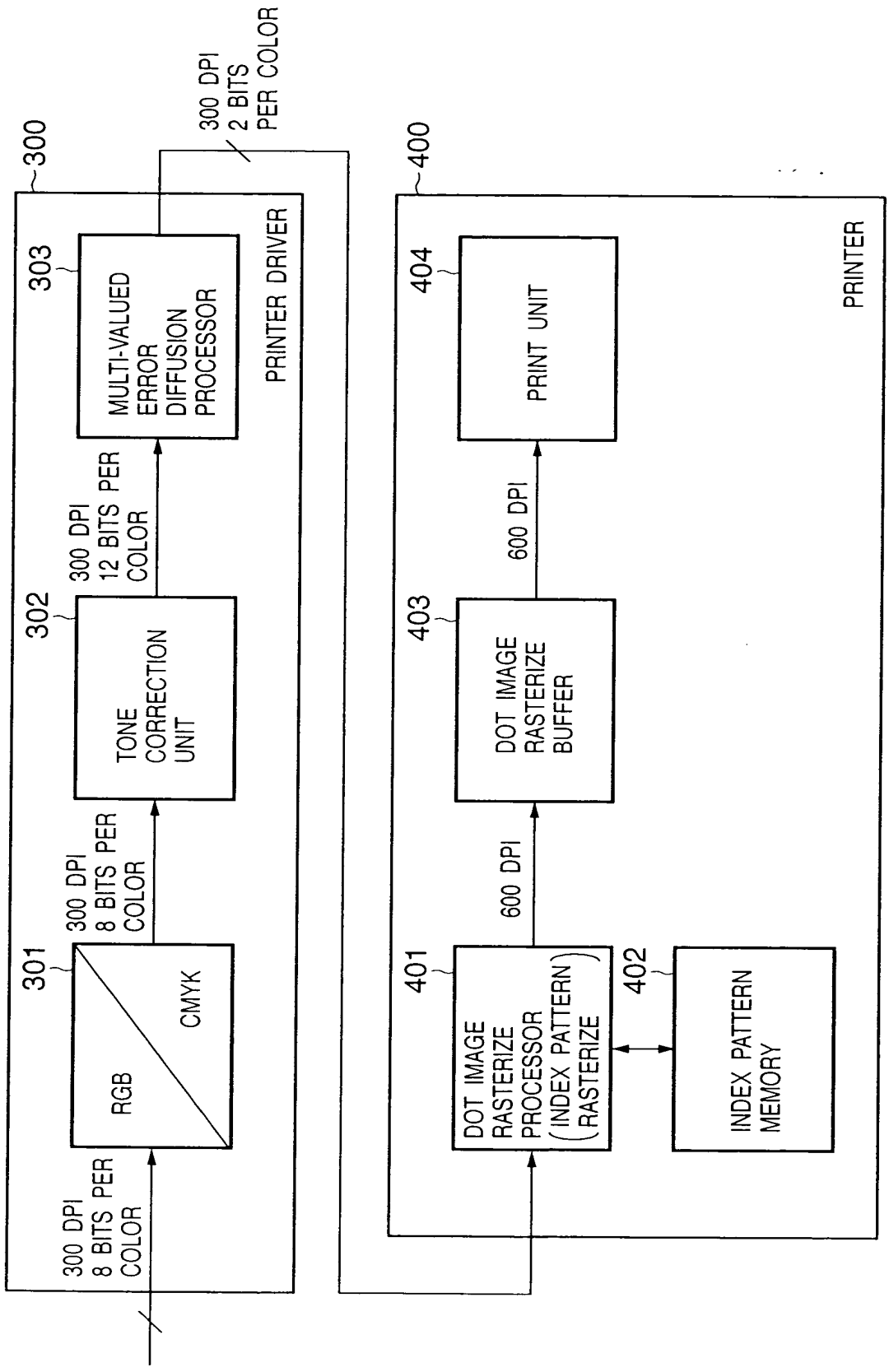

300
PRINTER DRIVER
300 DPI
8 BITS PER
COLOR
301
RGB
CMYK
300 DPI
8 BITS PER
COLOR
302
TONE
CORRECTION
UNIT
300 DPI
12 BITS PER
COLOR
303
MULTI-VALUED
ERROR
DIFFUSION
PROCESSOR
300 DPI
2 BITS
PER COLOR
400
PRINTER
401
DOT IMAGE
RASTERIZE
PROCESSOR
(INDEX PATTERN
RASTERIZE)
600 DPI
402
INDEX PATTERN
MEMORY
403
DOT IMAGE
RASTERIZE
BUFFER
600 DPI
404
PRINT UNIT

FIG. 21

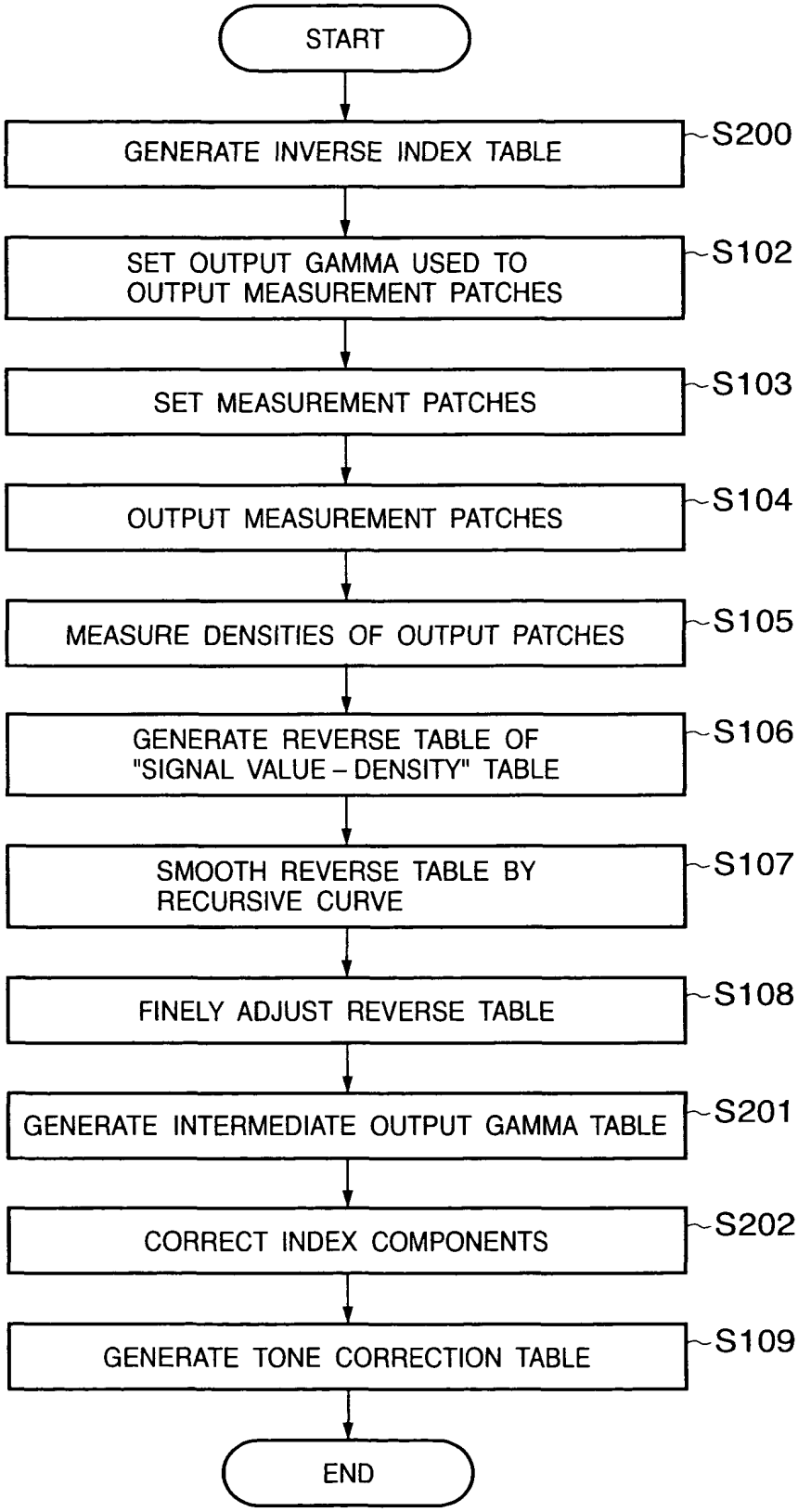

START
GENERATE INVERSE INDEX TABLE
S200
SET OUTPUT GAMMA USED TO OUTPUT MEASUREMENT PATCHES
S102
SET MEASUREMENT PATCHES
S103
OUTPUT MEASUREMENT PATCHES
S104
MEASURE DENSITIES OF OUTPUT PATCHES
S105
GENERATE REVERSE TABLE OF "SIGNAL VALUE – DENSITY" TABLE
S106
SMOOTH REVERSE TABLE BY RECURSIVE CURVE
S107
FINELY ADJUST REVERSE TABLE
S108
GENERATE INTERMEDIATE OUTPUT GAMMA TABLE
S201
CORRECT INDEX COMPONENTS
S202
GENERATE TONE CORRECTION TABLE
S109
END

FIG. 22

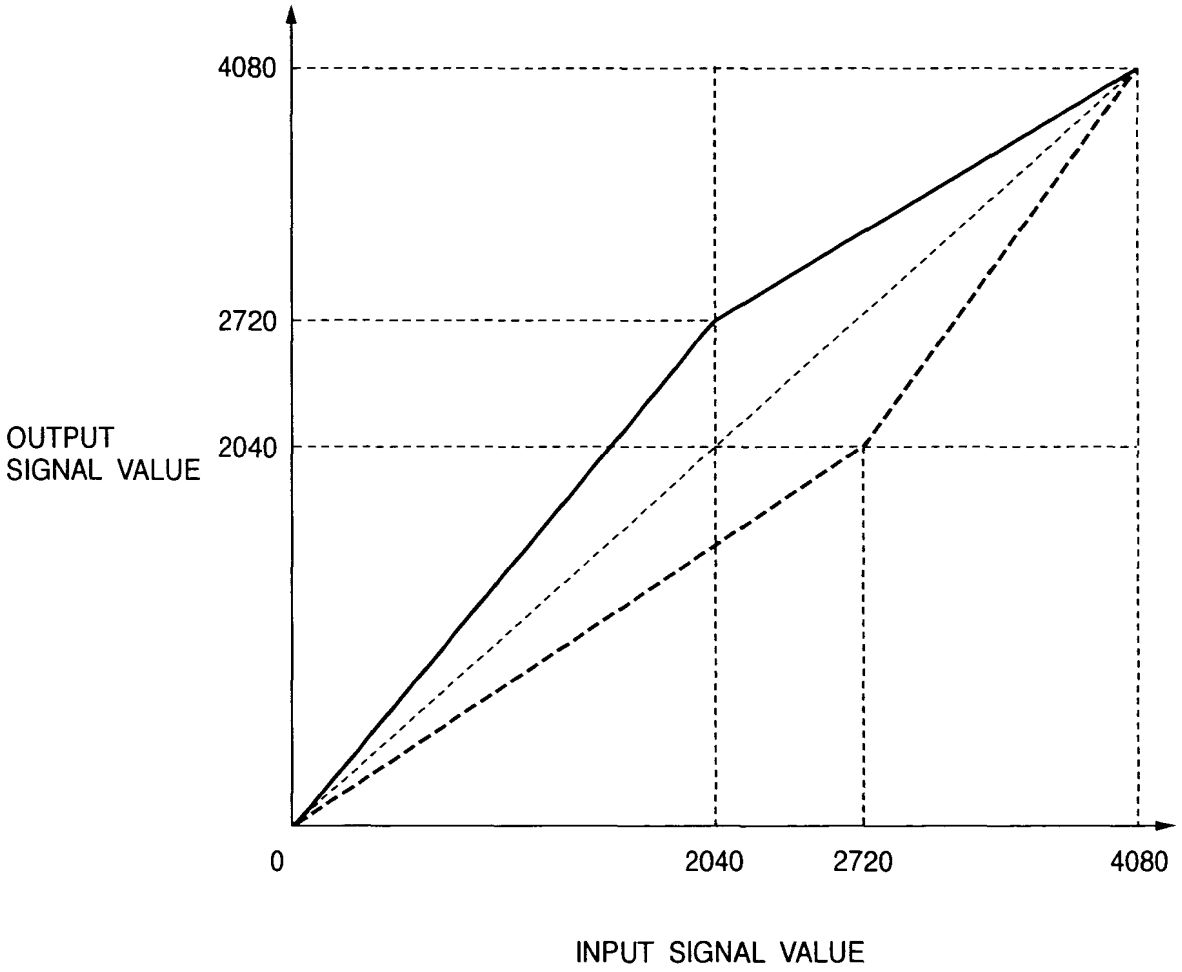

4080
2720
2040
OUTPUT
SIGNAL VALUE
0
2040
2720
4080
INPUT SIGNAL VALUE

FIG. 23

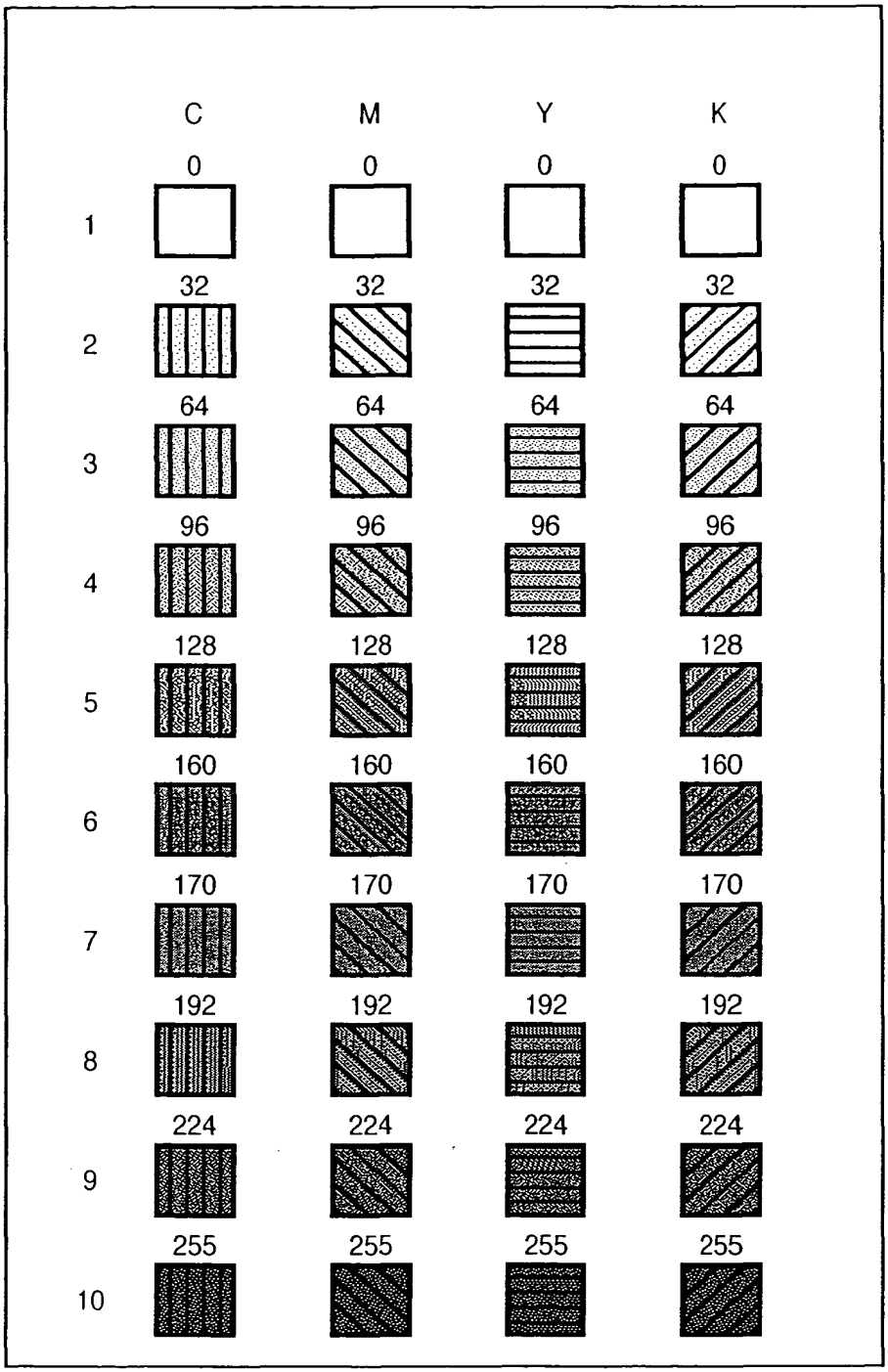


FIG. 24

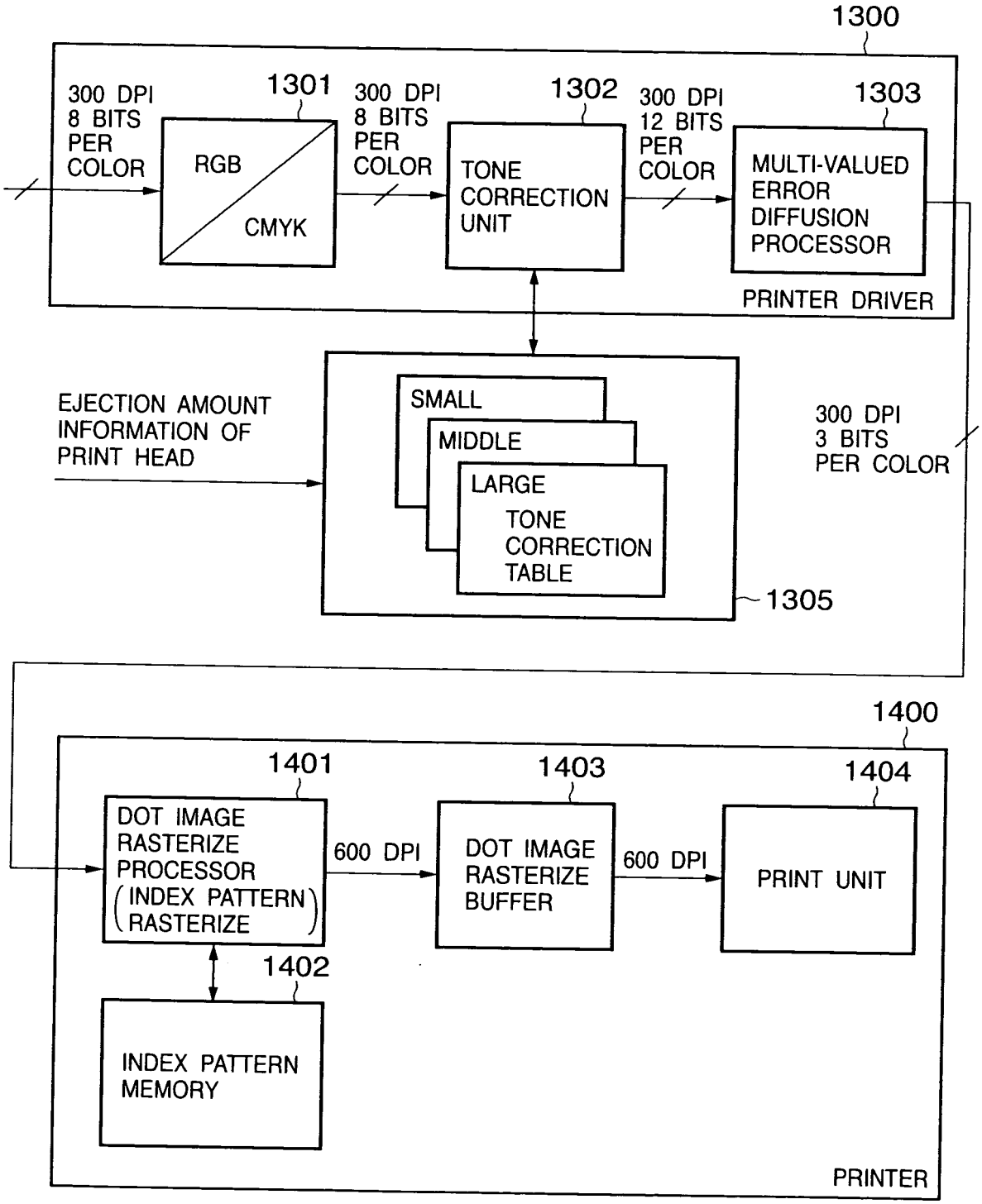

1300
300 DPI
8 BITS
PER
COLOR
1301
RGB
CMYK
300 DPI
8 BITS
PER
COLOR
1302
TONE
CORRECTION
UNIT
300 DPI
12 BITS
PER
COLOR
1303
MULTI-VALUED
ERROR
DIFFUSION
PROCESSOR
PRINTER DRIVER
EJECTION AMOUNT
INFORMATION OF
PRINT HEAD
SMALL
MIDDLE
LARGE
TONE
CORRECTION
TABLE
1305
300 DPI
3 BITS
PER COLOR
1400
1401
DOT IMAGE
RASTERIZE
PROCESSOR
(INDEX PATTERN
RASTERIZE)
600 DPI
1403
DOT IMAGE
RASTERIZE
BUFFER
600 DPI
1404
PRINT UNIT
1402
INDEX PATTERN
MEMORY
PRINTER

FIG. 25

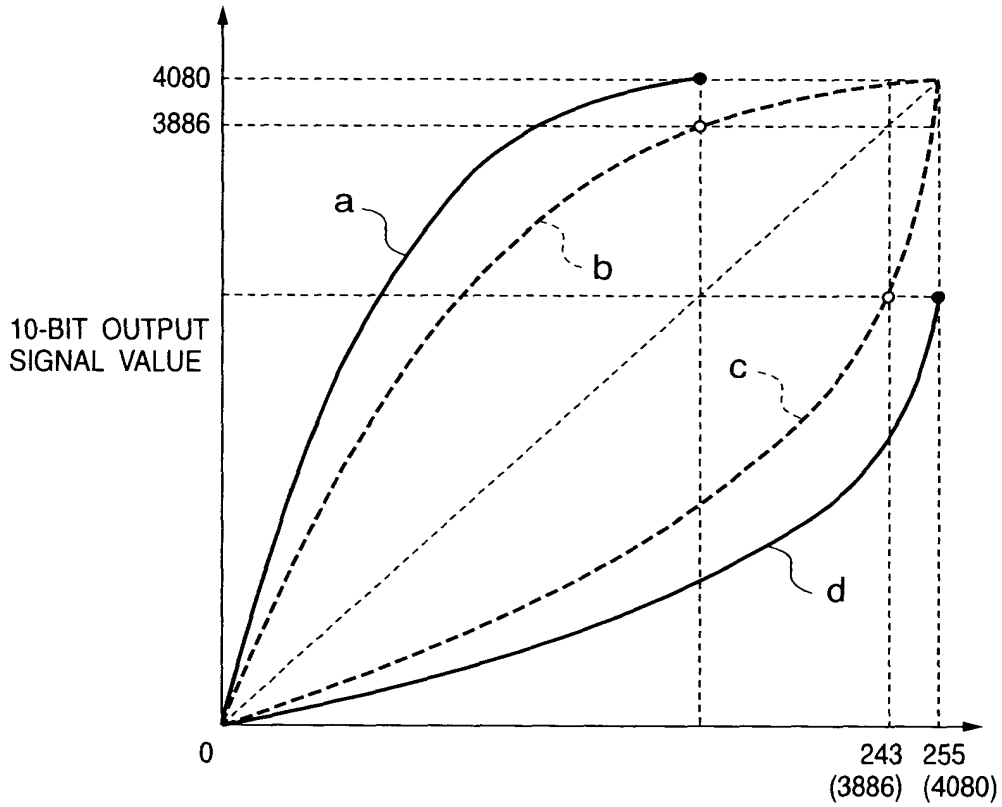

4080
3886
a
b
10-BIT OUTPUT
SIGNAL VALUE
c
d
0
243
(3886)
255
(4080)
8-BIT INPUT SIGNAL VALUE
(10-BIT INPUT SIGNAL VALUE)

FIG. 26

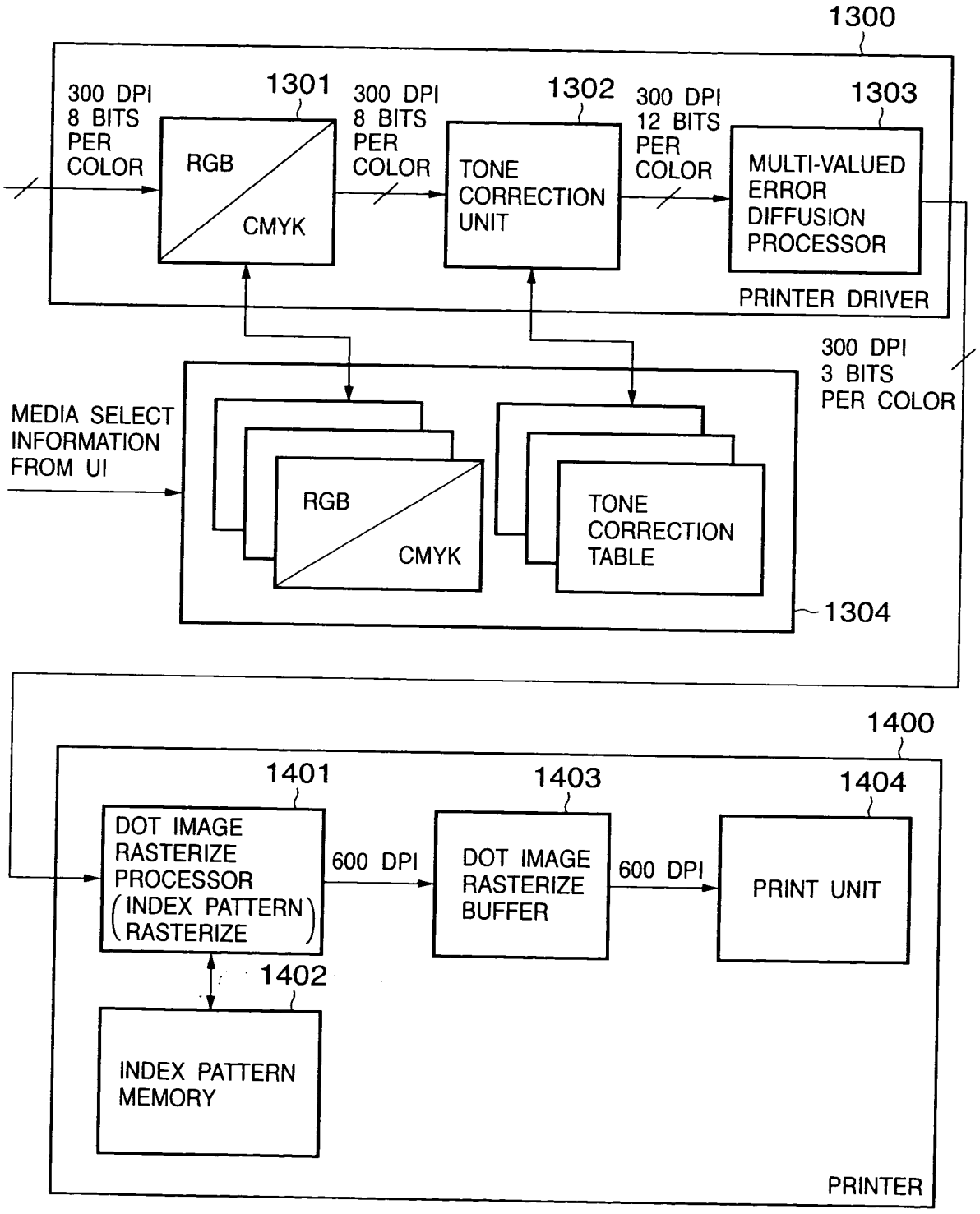

1300
300 DPI
8 BITS
PER
COLOR
1301
RGB
CMYK
300 DPI
8 BITS
PER
COLOR
1302
TONE
CORRECTION
UNIT
300 DPI
12 BITS
PER
COLOR
1303
MULTI-VALUED
ERROR
DIFFUSION
PROCESSOR
PRINTER DRIVER
300 DPI
3 BITS
PER COLOR
MEDIA SELECT
INFORMATION
FROM UI
RGB
CMYK
TONE
CORRECTION
TABLE
1304
1400
1401
DOT IMAGE
RASTERIZE
PROCESSOR
(INDEX PATTERN
RASTERIZE)
600 DPI
1403
DOT IMAGE
RASTERIZE
BUFFER
600 DPI
1404
PRINT UNIT
1402
INDEX PATTERN
MEMORY
PRINTER

FIG. 27

MEDIA	DOT QUANTITY (WHEN A = 100%)	TONE CORRECTION TABLE	RGB/CMYK COLOR CONVERSION TABLE
A	100%	A	A
B	80%	B	A
C	120%	C	C

FIG. 28

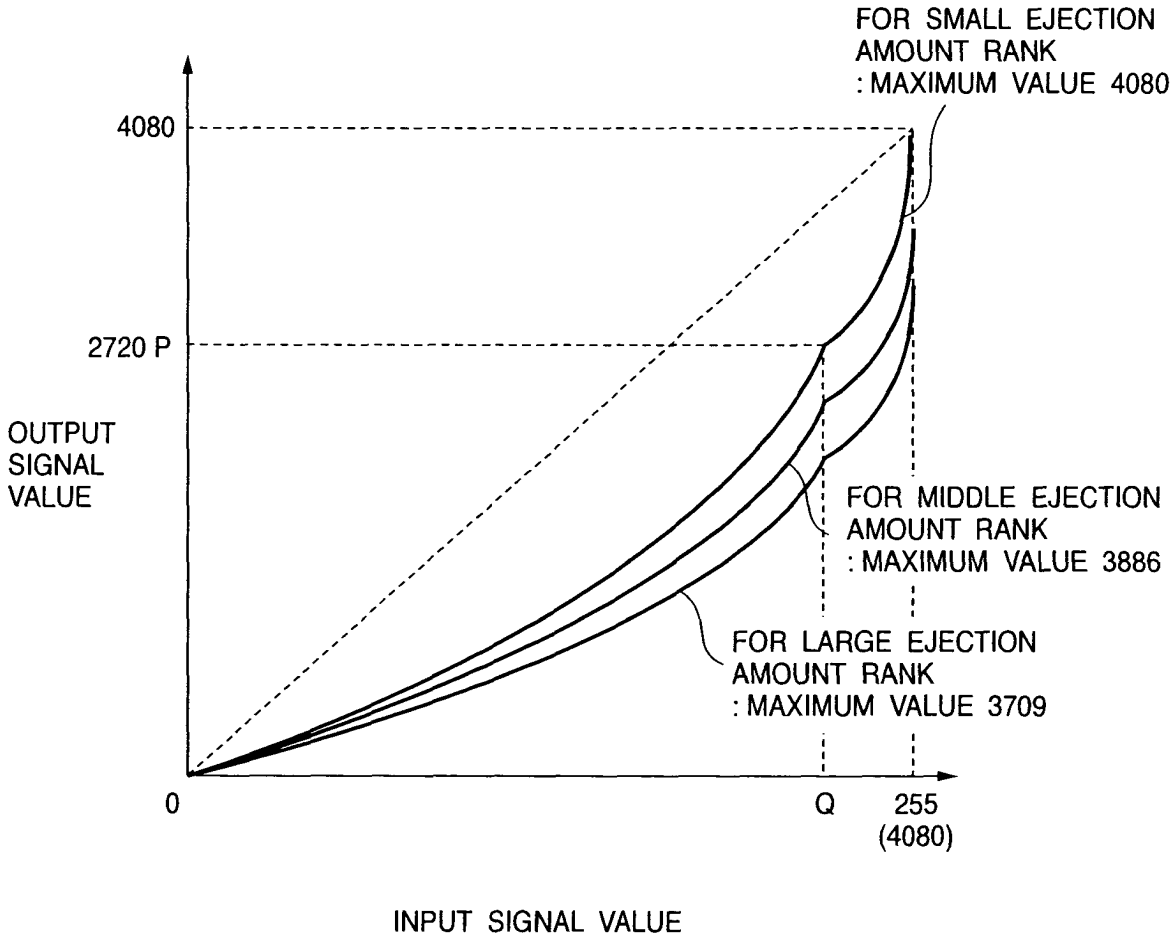

FOR SMALL EJECTION AMOUNT RANK : MAXIMUM VALUE 4080
4080
2720 P
OUTPUT SIGNAL VALUE
FOR MIDDLE EJECTION AMOUNT RANK : MAXIMUM VALUE 3886
FOR LARGE EJECTION AMOUNT RANK : MAXIMUM VALUE 3709
0
Q
255 (4080)
INPUT SIGNAL VALUE

FIG. 29

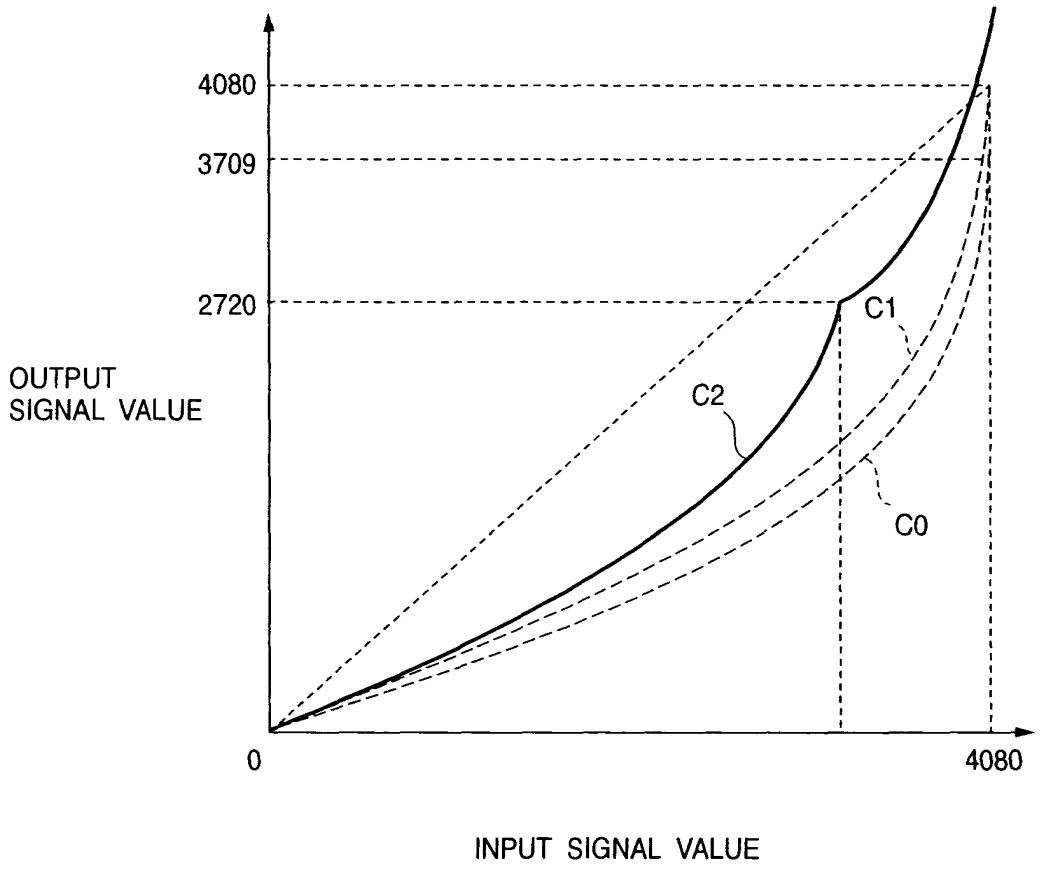

4080
3709
2720
OUTPUT
SIGNAL VALUE
C1
C2
C0
0
4080
INPUT SIGNAL VALUE

FIG. 30

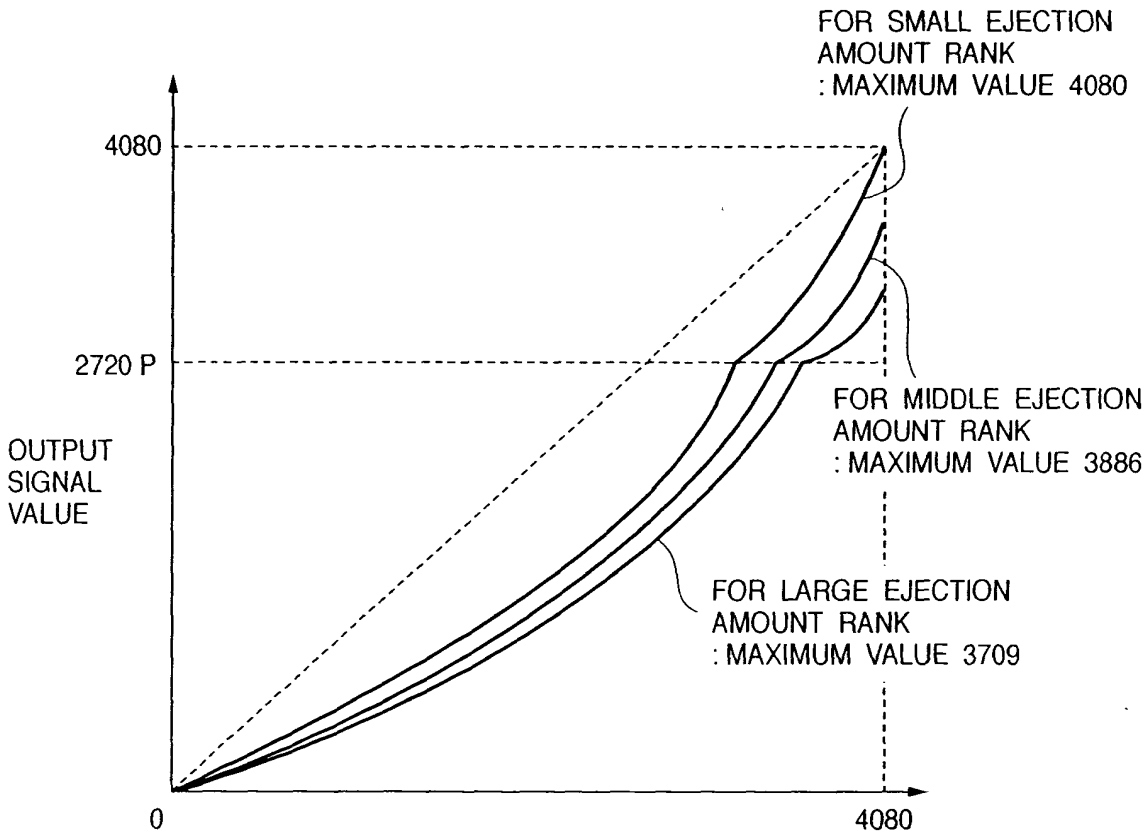

FOR SMALL EJECTION AMOUNT RANK : MAXIMUM VALUE 4080
4080
2720 P
OUTPUT SIGNAL VALUE
FOR MIDDLE EJECTION AMOUNT RANK : MAXIMUM VALUE 3886
FOR LARGE EJECTION AMOUNT RANK : MAXIMUM VALUE 3709
0
4080
INPUT SIGNAL VALUE

FIG. 31

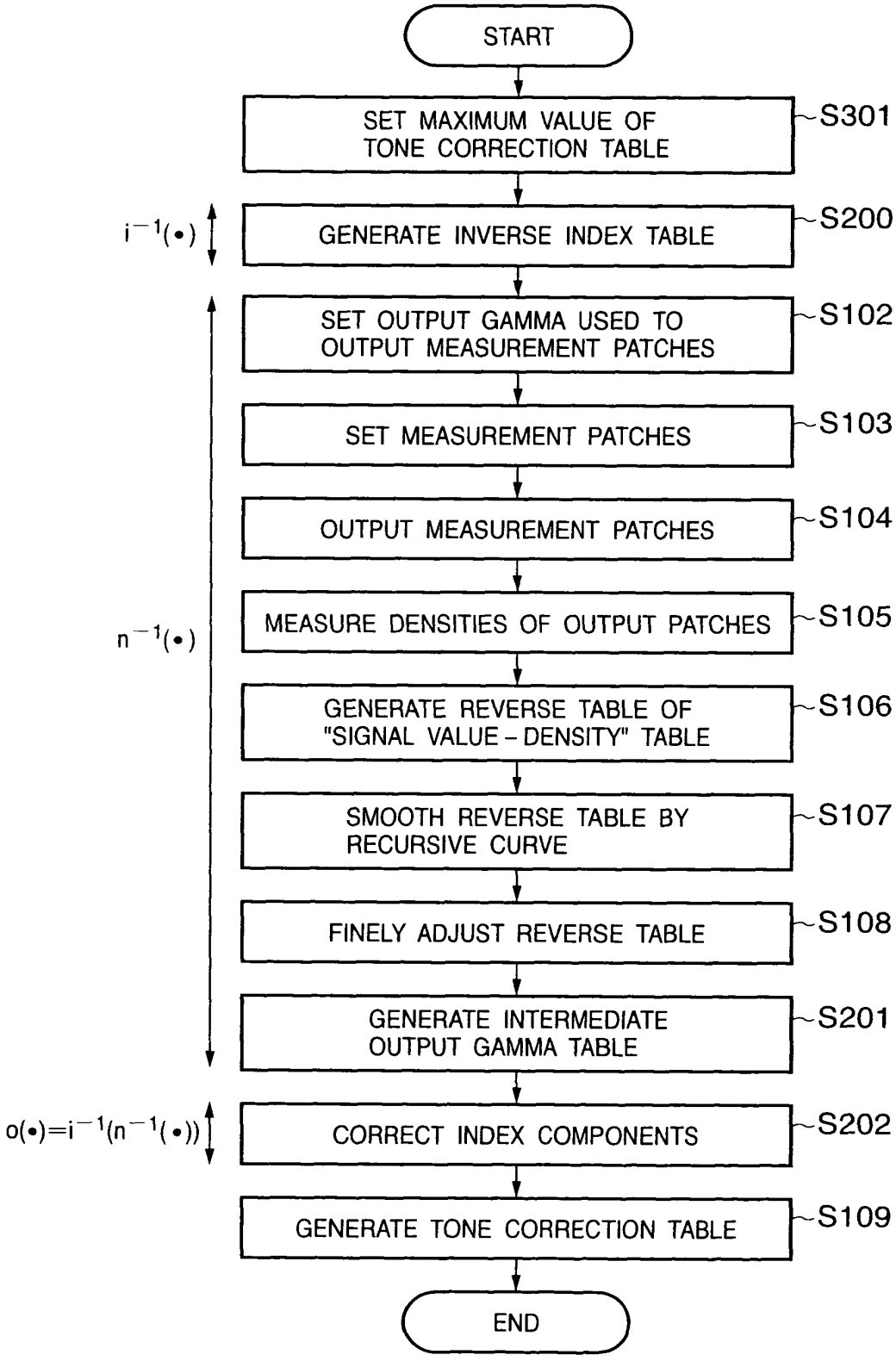

START
SET MAXIMUM VALUE OF TONE CORRECTION TABLE
S301
$i^{-1}(\bullet)$
GENERATE INVERSE INDEX TABLE
S200
SET OUTPUT GAMMA USED TO OUTPUT MEASUREMENT PATCHES
S102
SET MEASUREMENT PATCHES
S103
OUTPUT MEASUREMENT PATCHES
S104
$n^{-1}(\bullet)$
MEASURE DENSITIES OF OUTPUT PATCHES
S105
GENERATE REVERSE TABLE OF "SIGNAL VALUE - DENSITY" TABLE
S106
SMOOTH REVERSE TABLE BY RECURSIVE CURVE
S107
FINELY ADJUST REVERSE TABLE
S108
GENERATE INTERMEDIATE OUTPUT GAMMA TABLE
S201
$o(\bullet)=i^{-1}(n^{-1}(\bullet))$
CORRECT INDEX COMPONENTS
S202
GENERATE TONE CORRECTION TABLE
S109
END

FIG. 32

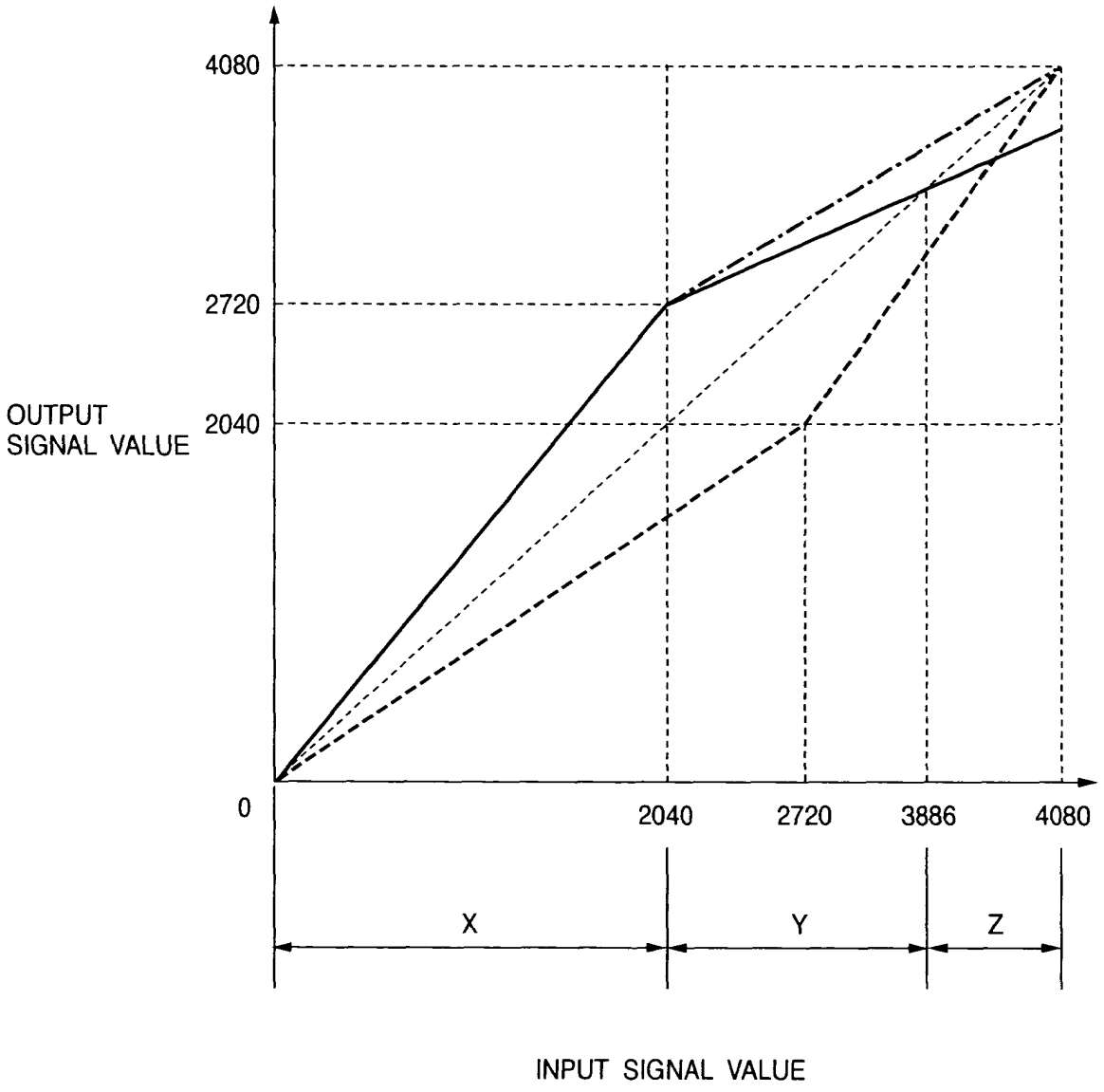

4080
2720
2040
OUTPUT
SIGNAL VALUE
0
2040
2720
3886
4080
X
Y
Z
INPUT SIGNAL VALUE

FIG. 33

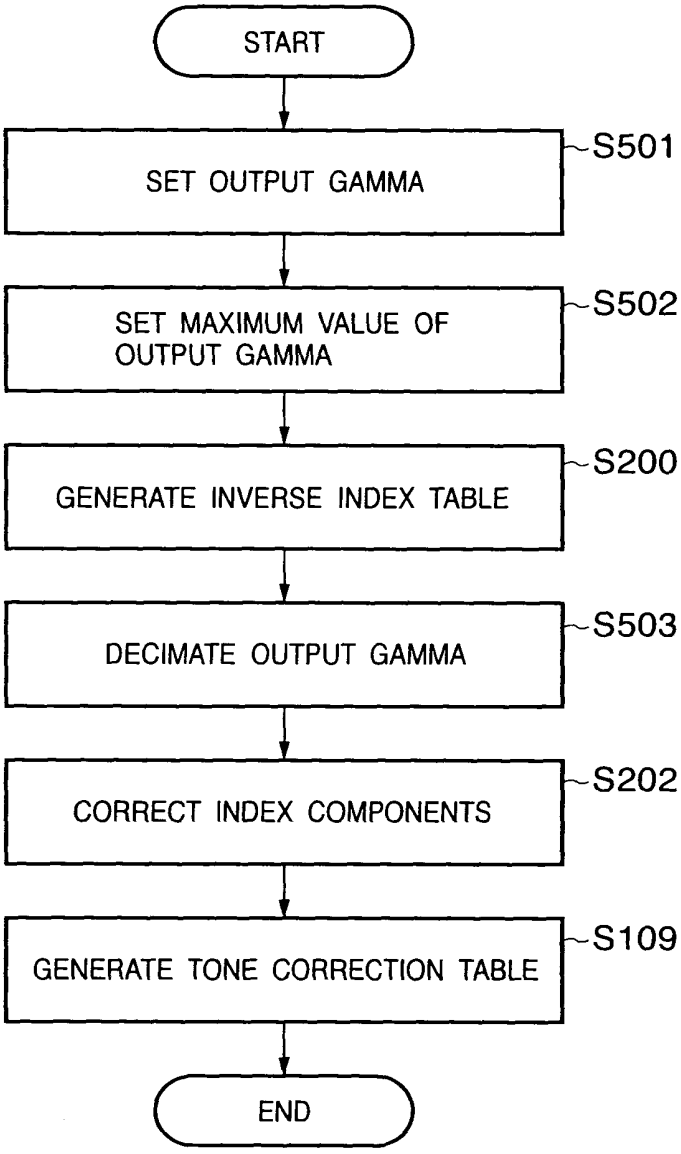

START
SET OUTPUT GAMMA
S501
SET MAXIMUM VALUE OF OUTPUT GAMMA
S502
GENERATE INVERSE INDEX TABLE
S200
DECIMATE OUTPUT GAMMA
S503
CORRECT INDEX COMPONENTS
S202
GENERATE TONE CORRECTION TABLE
S109
END

FIG. 34

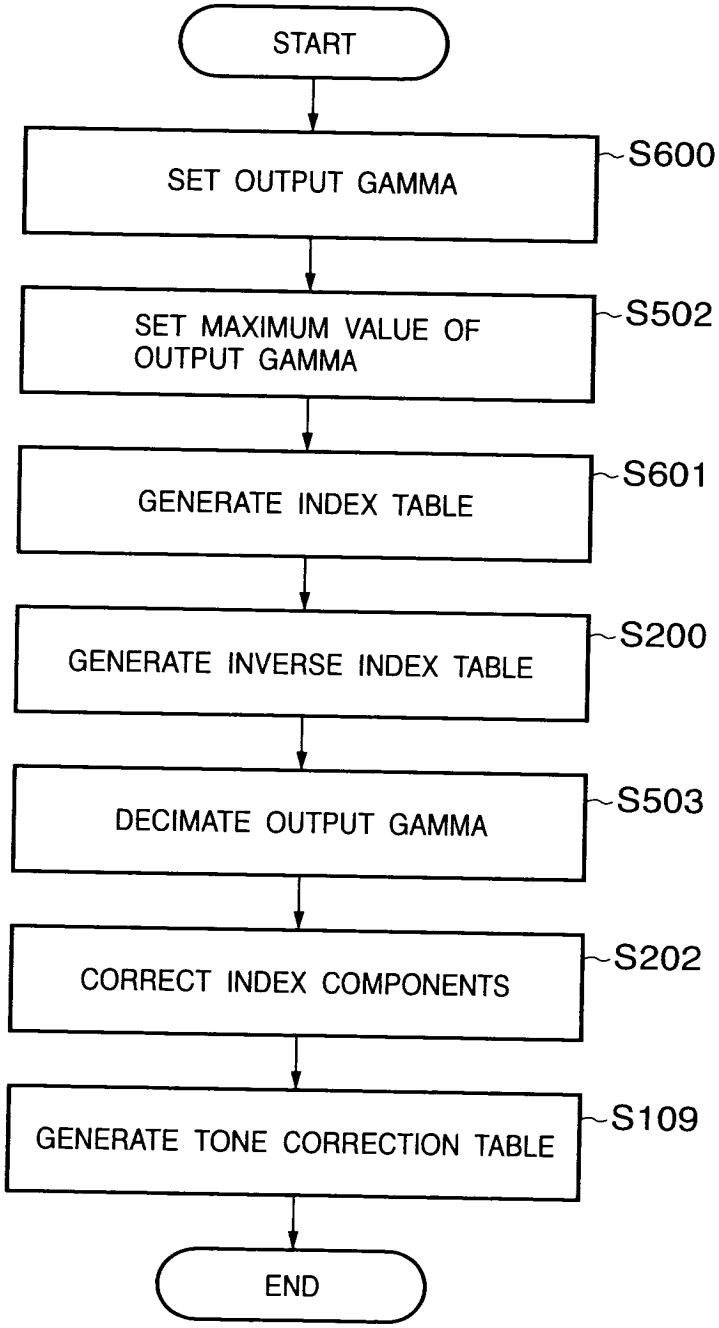

START
SET OUTPUT GAMMA
S600
SET MAXIMUM VALUE OF OUTPUT GAMMA
S502
GENERATE INDEX TABLE
S601
GENERATE INVERSE INDEX TABLE
S200
DECIMATE OUTPUT GAMMA
S503
CORRECT INDEX COMPONENTS
S202
GENERATE TONE CORRECTION TABLE
S109
END

FIG. 35

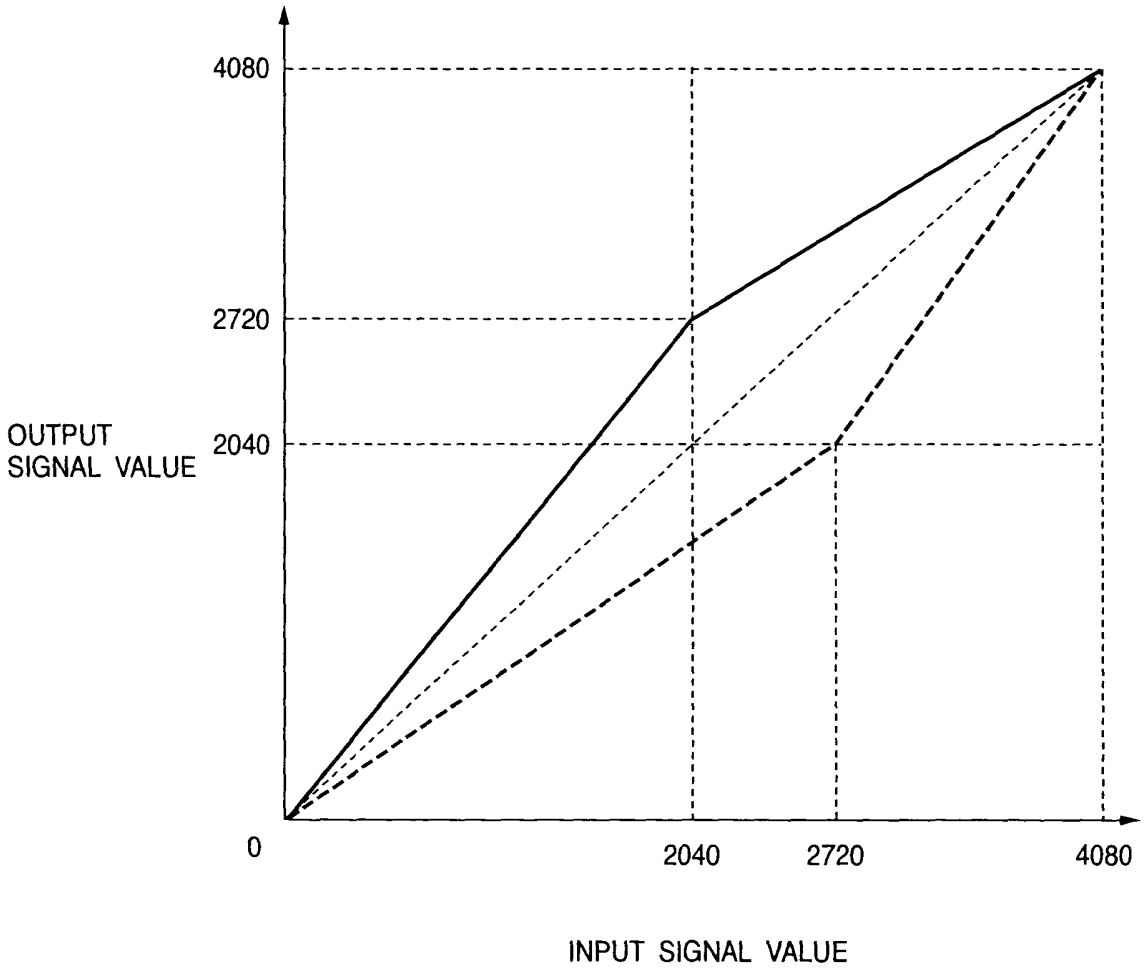
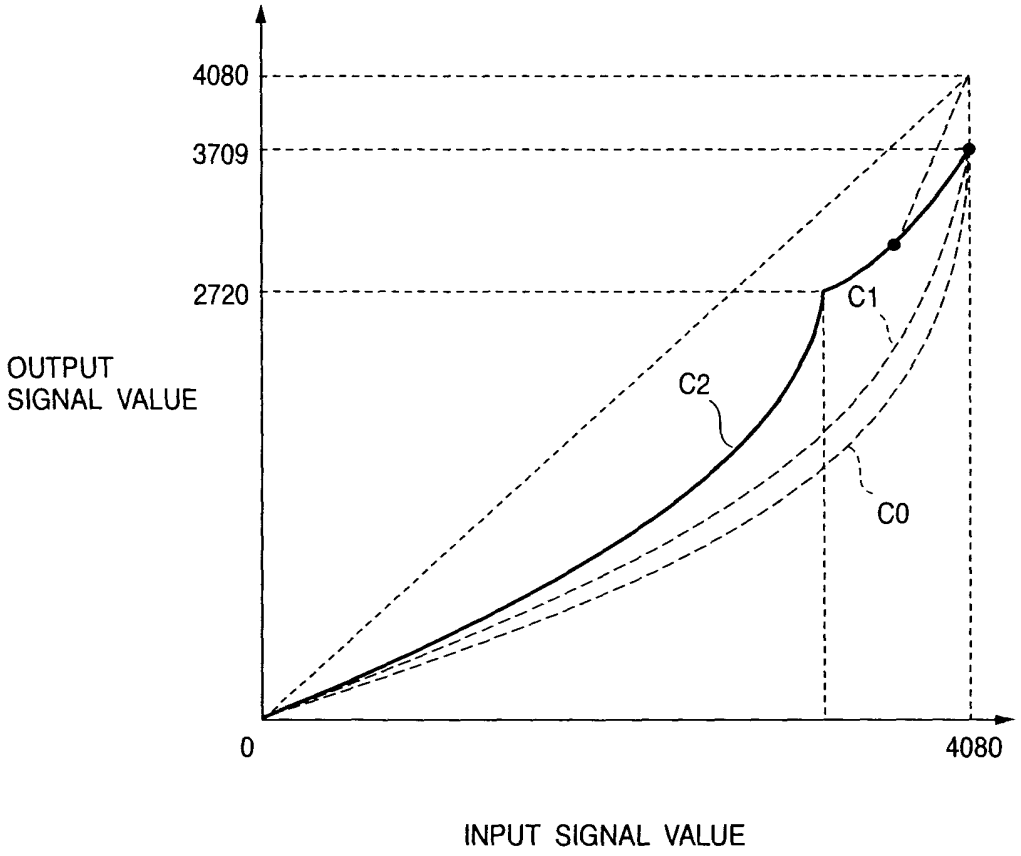

4080
2720
2040
OUTPUT
SIGNAL VALUE
0
2040
2720
4080
INPUT SIGNAL VALUE

FIG. 36


4080
3709
2720
OUTPUT
SIGNAL VALUE
C1
C2
C0
0
4080
INPUT SIGNAL VALUE